

# The Boston Medical and Surgical Journal

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## Original Articles

### SYPHILIS AND TRAUMA: THE NEUROLOGICAL ASPECT\*

BY HENRY R. VIETS, M.D., BOSTON

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THAT trauma plays a rôle as an etiological factor in neurosyphilis seems beyond question, although the amount of importance one should attach to this factor is still in dispute. It should be remembered, in considering this subject, that, although both trauma and syphilis are very old and well-known causative agents of disease, neurosyphilis, as a special branch of medicine, is comparatively recent in its origin. It may be noted in passing, that Leonicens described syphilis with paralysis as early as 1497, and Willis (1672) gave a good clinical description of dementia paralytica. In the nineteenth century locomotor ataxia came to be known as an entity (Duchenne, 1858-59), and other forms of neurosyphilis were clearly depicted, but it was not until the twentieth century that the subject was firmly grounded by the work of Schaudinn, Wassermann, Ehrlich, Noguchi, Mott, Southard and others. Now that we have a fairly clear

concept of the etiological agent and the pathological states resulting from its presence in the body, and dependable laboratory tests to aid in the diagnosis, we are in a more advantageous position than heretofore to consider the relation of trauma to neurosyphilis.

Neurosyphilis is classified in many types based on the pathological results of the spirochetal invasion. We separate two large groups, the interstitial and the parenchymatous, for clinical and therapeutic reasons, as well as on pathological grounds. The interstitial types—often called the meningovascular group—include those cases in which the spirochete or its toxin primarily attacks the enclosing, supporting, or nutrient tissues of the central nervous system. This large group includes the cases of so-called cerebral syphilis, cerebrospinal syphilis, syphilitic meningitis in its various forms, the syphilitic apoplexies, syphilitic spinal meningitis, syphilitic myelitis, et cetera. They are all examples of secondary-tertiary syphilis, coming on from a few weeks to a few years after the primary infection. This group is rarely associated with trauma.

The second group, the parenchymatous—often spoken of as para- or metasyphilis—might be considered as quaternary syphilis. In this group are included tabes dorsalis, tabes optica, taboparesis, general paresis, and a few other rare forms. Clinically they appear later than interstitial syphilis and are much more resistant

\*Read at a meeting of the Massachusetts Society of Examining Physicians, May 16, 1923.

to treatment. It is in this group that trauma is of the greatest importance from the examiner's point of view.

With these two groups in mind we may turn to the subject of trauma and neurosyphilis. Opinions have varied greatly in the past, and still do, in regard to the importance of trauma as a secondary etiological agent. There is practically no evidence at present that it is the primary cause of neurosyphilis, although it was only a few years ago that this viewpoint had many stout adherents. Most writers agree with Mott<sup>1</sup> that trauma may produce in the central nervous system a *locus minoris resistentiae* which "will predispose to the onset and progress of syphilitic affections." For instance, to take a few illustrations from the interstitial group of neurosyphilis: A blow on the back may lead to the rather rapid development of a transverse myelitis in a man with latent syphilis. One patient during the war received a superficial shrapnel wound of the back over a mid-thoracic spinous process. When seen a few weeks later he presented a picture of complete transverse myelitis at the corresponding segmental level of the spinal cord, with a positive Wassermann reaction in both his blood and his spinal fluid. As he rapidly cleared up under antisyphilitic intravenous and intraspinal treatment, it was considered that this man suffered from a definite spinal lesion, syphilitic in nature, aggravated by service, and he was so recommended for compensation. It might be presumed that the concussion of the bit of shrapnel caused a point of lowered resistance in the nearest segment of the spinal cord and led to a focus of activity by the invading organism, already present in his system. Some writers would argue on the grounds that the commotion accompanying the wound activated the spirochetes, which were formerly quiescent, but little except highly speculative theory could be introduced to support such an hypothesis.

Other examples of interstitial neurosyphilis or closely allied forms are found in the literature. Klauder,<sup>2</sup> for instance, mentions gumma of the frontal bone in Mohammedans, in consequence of the practice of striking the forehead on the stone floors during religious worship. An excellent account of syphilitic osteitis of the skull, with neurological symptoms, is given by Southard and Solomon<sup>3</sup> as follows: A moron, thirteen months after an injury to his head, without any features of traumatic neurosis except headache, showed a marked cranial osteitis by x-ray. The area was sensitive to percussion. The spinal fluid was negative, although the blood showed a positive Wassermann reaction. The Psychopathic Hospital, in their report to the Industrial Accident Board, regarded "the patient as deserving treatment," and felt that "the responsible parties in the case would

do well to have such treatment instituted." The diagnosis was: "a syphilitic bone condition predisposed to by the injury."

Cases like the above, however, although relatively rare, offer no marked difficulties in proving the relationship between the disease and trauma. The lesion is often at or near the site of the injury, and the laboratory evidence of the disease, including the spinal fluid and x-ray examinations, is pathognomonic of the condition. In short, in most cases of interstitial syphilis of the nervous system following trauma, the diagnostic difficulties are not very great (if adequate tests are done), nor are the compensation problems vexing. On the other hand, few subjects in medicine offer more problems to an insurance company or an accident board than the cases of parenchymatous neurosyphilis associated with trauma.

The evidence from the literature, although occasionally conflicting, is clearly on the side of a distinct relationship between trauma and paresis, with somewhat less evidence in regard to tabes dorsalis and tabes optica. Mott<sup>4</sup> agrees with many of the authorities that head injury may be "an exciting factor in quite a fair percentage of cases of general paralysis." Those associated with commotion or concussion lead to a more rapid progress, but do not cause the disease. He gave his opinion in the case of a railroad guard who developed paresis after reporting to have hit his head, that "in a certain number of cases in which head injury had occurred it might be assumed that, had there been no head injury, paralytica dementia would not have ensued." This rather conservative opinion seems to summarize the thoughts of most writers, although Nonne<sup>5</sup> thinks we have a tendency to over-estimate the influence of trauma. He speaks of the rarity of paresis in cases of marked trauma, such as skull fracture. He found only two cases of paresis in 150 cases of trauma, some of which had syphilis. Campbell<sup>6</sup> thinks, nevertheless, that trauma has an "unfavorable influence on the course of the disease." He states that "compensation has been granted on the ground that the trauma acted as a precipitating cause," but he feels that closer examination might sometimes show that the trauma was a result of existing general paralysis. Marie, who saw thousands of cases of head injury during the war, did not find a single case of paresis among them. The evidence seems to be, then, that severe head injuries do not often predispose to parenchymatous neurosyphilis, but that rarely less severe trauma may precipitate the disease, and, more commonly, may accentuate or aggravate an already existing condition.

The war gave us a few striking examples to confirm the last statement. Southard and Solomon<sup>3</sup> give the history of a case of tabes devel-

oping paresis after trauma. These cases are rare, however, compared with the great number of cases of paresis, especially in officers, that developed, not because of actual trauma, but as an indirect result of alcoholism or stress and strain of war. Old syphilitics were especially liable to break down. Of the many parietic cases that were seen in service, I cannot recall one that was the result of trauma, although in all it was felt that this disease was accelerated, and in some actually precipitated by war conditions.

The evidence for tabes is even less than that for paresis. Oppenheim<sup>7</sup> was able to demonstrate in the majority of his cases where the question of trauma entered, that "the tabetic symptoms had already existed before the injury, and that they had been preceded by syphilitic infections." He thinks, however, that, as in paresis, injury may materially hasten the progress of the disease. He cites two cases, one of a workman with mild tabes who developed severe arm ataxia and anesthesia after a crush of the hand, and a man with cervical tabes who, after a fall on the back developed marked leg symptoms. Such cases must be very rare. In the large tabetic clinic at the Massachusetts General Hospital, I can recall only one patient in the last two or three years who mentioned trauma in the history of the onset of his illness.

Older theories in regard to the relation of occupation to parenchymatous neurosyphilis are now looked upon as of slight importance. Brain workers are probably not more liable to paresis than manual workers. Edinger's "exhaustive theory" is not so important as once it was thought to be. Soldiers and postmen do not necessarily develop ataxia of the legs when suffering from tabes, nor do blacksmiths and type-setters have excessive ataxia of the arm.

A second, and in some ways even a more important, aspect of this problem is the reverse of the condition mentioned above. What is the importance of the relation of syphilis to trauma? Are workmen with known or more commonly with unknown neurosyphilis more liable to injury and therefore more likely to become candidates for insurance or compensation? This is a problem of the greatest importance in industrial medicine and accident prevention. Mock<sup>8</sup> gives us a good case history that will illustrate the point:

Mr. C., a ten-year employee in a certain plant, who had been periodically examined a number of times, reported to the doctor's office with a scalp wound. He stated that a box had fallen from a shelf and struck him on the head. There had been no witnesses. This was repeated two weeks later, and on still another occasion. He claimed that he had fallen down stairs, but no one had seen him fall. The man was given an examination, which was negative. An investigation in his department revealed the fact that an employee had seen him fall while in the wash room. When the man was confronted with

this statement he confessed that he had fallen while standing in the wash-room, but didn't know what caused it. Although later physical examination and blood test were negative, a much later spinal fluid examination showed evidence of cerebrospinal syphilis.

Mock states that during one year he found three cases of cerebrospinal syphilis in the same industry. Two suffered injury due to falling.

Another even more striking case, from Mock, illustrates how errors in diagnosis due to failure to make a complete examination (in this case the examination of the spinal fluid) may lead to unwarranted compensation and litigation.

A painter, six years with a concern, was dizzy. When a hypertension of 180 and a few casts in the urine were found, the factory doctor reported a diagnosis of chronic interstitial nephritis, and the man received six months' leave with full pay. Later the patient entered a local hospital with a diagnosis of lead poisoning, based on his history as a painter, abdominal pain for four months, paresis of his left leg with foot-drop, and (so the report read) "basophilic degeneration of the red cells." The blood Wassermann reaction was negative. The case seemed like lead poisoning and the company was sued, but more careful examination revealed an ankle clonus, a Babinski sign on the parietic side, and saddle anesthesia. The spinal fluid gave a positive Wassermann, and the diagnosis finally was syphilitic spinal meningitis.

Much stress has been, and more should be, laid on a coincidental disease, such as syphilis in industry. The foundry worker who lost his eyesight and claimed compensation, because of the excessive glare of the furnace, had tabes optica. A knee, supposedly badly damaged in an accident, turned out to be a Charcot joint in a tabetic. A careful examination plus laboratory test usually will show the specific cause. As the cases mentioned above indicate, such examinations are sometimes neglected.

#### CONCLUSIONS

Trauma is a secondary etiological factor, which may accelerate, aggravate, or even precipitate neurosyphilis, but never initiates it in the sense that it is the primary factor.

Direct trauma may occasionally lead to rapid and severe forms of interstitial neurosyphilis, the diagnosis of which, by clinical examination and laboratory tests, is relatively easy, and the secondary causal relationship usually fairly evident.

Parenchymatous syphilis may be accelerated, and rarely precipitated, by trauma. The diagnosis may be difficult and the demonstration of the causal relationship extremely so.

Neurosyphilis must be fairly common in workers.

In obscure cases the diagnosis must be confirmed by an examination of the spinal fluid.

Neurosyphilitics are especially prone to accidents, because of fits, optic atrophy, unstead-

iness in the dark, ataxia of arms, diplopia, and mental changes.

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## MILK AND THE PUBLIC HEALTH

BY JOSEPH GARLAND, M.D., BOSTON

### I. BOVINE TUBERCULOSIS

Cow's milk for human consumption has been the subject of a controversy that has raged for many years. Opposing interests have joined hands with diverse prejudices to wage the war of milk, the perfect food, against milk, the agent of disease, until it seems as if some light of knowledge must have graced the situation. That this light has been granted there is no doubt, but the clouds of battle may still obscure it to some extent. Legislation, wise and unwise, over-zealous and incomplete, favoring the farmer and protecting the consumer, has helped not a little in catering to the confusion of those who are aware of its existence; and the fact remains that, to a large proportion of the populace, milk is still plain milk.

An attempt is therefore made to bring out of this chaos a few facts that may be useful; for if these facts exist, they should be known, and it is the privilege of our profession to bring them home and nail them to the wall; to demonstrate the value of pure milk and to point out the dangers of impure milk, for the public will demand what it feels to be right and eventually it will get what it demands, and that demand may be to a considerable extent influenced by the physician. This short series of articles, then, is not intended to be a weighty "Arbeit," pregnant with abstruse scientific knowledge or the fruits of lonely voyages into new realms of thought. It must rest on its merits as an attempt to present in available form a few important facts on a very important subject.

#### DIFFERENTIATION OF TYPE

Robert Koch in 1882 isolated and cultivated the tubercle bacillus. No difference was recognized between the human and bovine types, however, until it was demonstrated by Theobald Smith in 1898 after a systematic comparative

study of the organisms. Even then, however, infection of man with the bovine bacillus was not recognized, for in 1901 Koch said in an address before the Tuberculosis Congress of London that bovine and human tuberculosis were different diseases; that the human disease was not transferable to cattle, and that it was not necessary to protect man from pearl disease or bovine tuberculosis.<sup>1</sup> An extended controversy resulted in Koch's virtual admission of the correctness of Smith's observations. Differentiation between the two types of bacillus may be made partly by morphology and cultural characteristics, but more surely by animal inoculation. Guinea-pigs inoculated with the bovine type die more quickly and show more extensive lesions than those infected with human bacilli, but the difference in pathogenicity for rabbits is more striking. The bovine bacilli generally kill a rabbit within two to five weeks; the human bacilli produce a mild and slow disease, lasting often for six months, and occasionally failing to kill the rabbits at all.<sup>2</sup>

#### TUBERCULOSIS IN LIVE STOCK

The loss from tuberculosis is one of the heaviest taxes imposed upon our live-stock industry, amounting, probably, to at least \$40,000,000 a year in the United States. It exists, though in varying degrees, in every State and territory in the Union, the percentage varying in some States from 5 to 30 per cent. of the cattle population; in others less than 1 per cent. of the total of beef and dairy cattle are tuberculous. In the middle western, western, and southern States tuberculosis was unknown until cattle from the eastern part of the country were introduced. In some parts of the West, where dairying has developed extensively, it is now known that earload lots of cows purchased in other States have contained 50 per cent. or more of tuberculous animals.<sup>3</sup> The tuberculous cow, as well as being a menace to other cattle, is the commonest source of infection to swine, and there is no question that eradication of tuberculosis from cattle will greatly reduce its prevalence among hogs. The table on the following page gives some indication of the prevalence of the disease among our live stock.

Tuberculosis in cattle may give no indication of its presence by external symptoms. As in man, a generally run-down condition, accompanied by cough, may be considered an indication of tuberculosis, but is not conclusive. The glands of the throat, udder, and point of the shoulder may be enlarged or hardened. The coats of animals affected with advanced tuberculosis may be "staring" and generally unthrifty. Swollen throat glands may cause the head to be held in an abnormal position to relieve the pressure which causes difficult breathing. When glands of the thoracic cavity are



extensively diseased the animal may develop bloat; often extensively diseased animals are apparently in perfect physical condition.

The tuberculin test—subcutaneous, intradermic, or ophthalmic—is the most reliable and practicable way of discovering the presence of infection. Of these the intradermic test, applied in the region at the base of the tail, is the most

ish Royal Commission of 1911, as quoted in the report of the Special Milk Board.<sup>4</sup>

"Question 1.—As to whether the disease in animals and man is one and the same."

"Conclusion.—Whether one prefers to regard bovine tuberculosis and the cases of tuberculosis in man, which are caused by the human type of bacilli, as varieties of the same disease or as

TABLE 1.—Number of cattle and swine slaughtered, and those retained and condemned on account of tuberculosis at establishments where Federal meat inspection is maintained.

Fiscal year.	Cattle.			Swine.		
	Slaughtered.	Retained.	Condemned.	Slaughtered.	Retained.	Condemned.
1907 <sup>1</sup> .....	5,867,642	24,876	17,117	26,189,026	362,445	48,544
1908.....	7,116,275	68,895	24,571	35,113,077	719,279	77,554
1909.....	7,325,357	100,640	24,525	35,427,931	860,425	45,113
1910.....	7,962,189	123,501	27,638	27,656,021	792,176	28,880
1911.....	7,781,080	133,551	27,186	26,916,363	1,117,789	31,517
1912.....	7,532,005	160,122	35,273	34,966,378	1,645,100	42,267
1913.....	7,155,816	152,560	33,001	32,287,538	1,809,751	47,632
1914.....	6,724,117	145,699	29,738	33,289,705	2,201,005	48,252
1915.....	6,964,402	158,259	32,644	36,247,958	2,774,855	66,023
1916.....	7,404,288	190,991	37,085	40,482,799	3,687,817	74,109
1917.....	9,299,489	218,928	46,351	40,210,847	3,978,168	76,807
1918.....	10,938,287	222,787	40,692	35,449,247	3,494,387	59,740
1919.....	11,211,991	205,698	37,600	44,288,389	4,103,376	65,817
1920.....	9,709,819	200,647	37,492	38,981,914	4,260,719	65,606
1921.....	8,179,572	173,658	33,328	37,702,866	4,693,305	64,830
1922.....	7,871,457	215,606	39,454	39,416,439	5,640,081	70,304

<sup>1</sup> Covers 9 months from October 1, 1906, to June 30, 1907.

convenient and most frequently employed. The ophthalmic test is often used as a check.

The spread of tuberculosis in a herd is by contact with tuberculous animals, by milk, and discharges from the mouth, nose and intestines; from feed contaminated by infected animals; from continuous water troughs, common drinking holes and infected premises. The practice of feeding calves with raw milk from tuberculous cows is a potent source of infection.<sup>3</sup>

Avian tuberculosis requires but passing mention, as its importance is mainly economic. It apparently is unassociated with either the human or the bovine types, and man is highly resistant to it.

#### BOVINE TUBERCULOSIS IN MAN

Accidental infection of milk and milk products by human tubercle bacilli may be a possible factor in the transmission of tuberculosis, but the great source of danger as regards transmission through milk is the cow herself—according to the Report of the Special Milk Board of the Massachusetts State Department of Health, submitted in 1915, and which will be extensively referred to hereinafter.<sup>4</sup>

The question of the exact scientific difference between the human and bovine tubercle bacillus, and human and bovine tuberculosis, has been a subject of controversy and is still a mooted point. For practical purposes we can do no better than to read the conclusions of the Brit-

ish Royal Commission of 1911, as quoted in the report of the Special Milk Board.<sup>4</sup>

"Question 2.—Whether animals and man can be reciprocally infected."

"Conclusion.—We must conclude that animals and man can be reciprocally infected with the disease tuberculosis."

"Question 3.—Under what condition, if at all, the transmission of tuberculosis from animals to man takes place, and what are the circumstances favorable or unfavorable to such transmission."

"Conclusion.—Whatever may be the animal source of tuberculosis in adolescents and in adults, there can be no doubt that a considerable proportion of the tuberculosis affecting children is of bovine origin."

And again.—"It may be asked in what way are children . . . most likely to obtain a large and fatally infective dose of tubercle bacilli? . . . To this question there can be but one answer, namely, that . . . a considerable amount of the tuberculosis of childhood is to be ascribed to infection with bacilli of the bovine type trans-

mitted from the mother or from the milk of an infected cow."

"Conclusion.—Whether one prefers to regard bovine tuberculosis and the cases of tuberculosis in man, which are caused by the human type of bacilli, as varieties of the same disease or as

independent diseases, there can be no question that human tuberculosis is in part identical with bovine tuberculosis. Our researches have proved that in a considerable proportion of cases of the human disease the lesions contain, and are caused by, bacilli which in every respect are identical with the bacilli which are the cause of tuberculosis in cattle. In all such cases, therefore, the (human) disease is the same disease as bovine tuberculosis."

And again.—"It may be asked in what way are children . . . most likely to obtain a large and fatally infective dose of tubercle bacilli? . . . To this question there can be but one answer, namely, that . . . a considerable amount of the tuberculosis of childhood is to be ascribed to infection with bacilli of the bovine type trans-

mitted to children in meals consisting largely of the milk of the cow."

In this connection it may be well to mention the universal agreement that at least 2 per cent. of tuberculous cows have tuberculosis of the udder, and it has been stated by Sir Harold Stiles of Edinburgh that a drop of milk from a tuberculous udder, diluted 100,000 times, will infect the guinea-pig in almost every instance. It is apparent, also, that there is need to emphasize especially the possibility of milk-borne infections being transmitted through the products of milk, the most important being cream, butter, and ice cream. Cheese is, in all probability, much less liable to such dangers, owing to the lapse of time that generally occurs between its production and consumption. As regards the first three, the same precautions

12 years of age from the Boston Children's Hospital, identified the bovine organism in 10 instances, or 33.1-3 per cent. Twenty-three of the total number were under five years of age, and in this group the organism was of the bovine type in 25 per cent. of the cases. They quote the figures of Mitchell, who found 90 per cent. of 72 cases of cervical adenitis in and about Edinburgh to be of bovine origin, while Fraser, in a series of 70 cases of bone and joint tuberculosis in the same locality, recovered the bovine organism in nearly 60 per cent. of the total.

It may be well to mention, as pointed out by them, the high incidence of tuberculosis among the cattle of Scotland, and the almost universal practice of feeding Scottish children with unsterilized milk.

Diagnosis.	Adults 16 years and over		Children 5 to 16 years		Children under 5 years	
	Human	Bovine	Human	Bovine	Human	Bovine
Pulmonary tuberculosis	568	17	11	-	12	-
Tuberculous adenitis, axillary or inguinal	2	-	4	-	2	-
Tuberculous adenitis, cervical	22	1	35	20	15	20
Abdominal tuberculosis	15	5	7	7	6	15
Generalized tuberculosis alimentary origin	6	1	2	3	15	10
Generalized tuberculosis	28	-	4	1	28	5
Generalized tuberculosis, including meningitis, alimentary origin	-	-	1	-	3	8
Generalized tuberculosis, including meningitis	4	-	7	-	45	1
Tuberculous meningitis	-	-	2	-	14	2
Tuberculosis of bones and joints	16	1	26	1	21	-
Genito-urinary tuberculosis	11	1	1	-	-	-
Tuberculosis of skin	1	-	1	-	1	-
Miscellaneous Cases:						
Tuberculosis of tonsils	-	-	-	1	-	-
Tuberculosis of mouth and cervical nodes	-	1	-	-	-	-
Tuberculous sinus or abscesses	2	-	-	-	-	-
Sepsis, latent bacilli	-	-	-	-	1	-
TOTALS	677	9	99	35	161	59
Mixed or double infections, 4 cases.						

should be insisted upon as are employed in safeguarding a milk supply.

The relative incidence of bovine and human tuberculosis in childhood has been variously quoted by different investigators, and of course varies greatly in different localities according to the incidence of tuberculosis among the cattle and the form in which the milk is consumed—whether raw, or boiled, or pasteurized. Gordon and Brown,<sup>5</sup> using rabbits and guinea-pigs for inoculation and culturing on plain egg and glycerin egg media, in a series of 30 cases under

Probably the largest single group of cases is that of Park and Krumwiede,<sup>6</sup> shown above.

The most common probable routes of invasion of the bovine tubercle bacillus might be graphically represented in a simple manner, as on the following page.

Stone<sup>7</sup> believes that "in all probability a much larger proportion (cervical adenitis) than has been definitely proved is due to milk-borne infection." In this connection and serving, by the way, to illustrate the possibility of danger from certified milk not properly controlled, he

cites the case of a high-grade dairy, the milk from which was certified. Following the addition of some cows to the herd after a change in ownership, an epidemic of tuberculous cervical adenitis occurred in children fed on the milk from that dairy. At least one child of this group succumbed to tuberculous meningitis. A tuberculin test showed about a dozen cows reacting, and one of these had a tuberculous udder.

As another illustration he mentions several families who secured their milk from a neighbor who kept a few cows. From one of these cows there originated five cases of tuberculosis among children, one of whom died of tuberculous peritonitis and one of tuberculous meningitis.

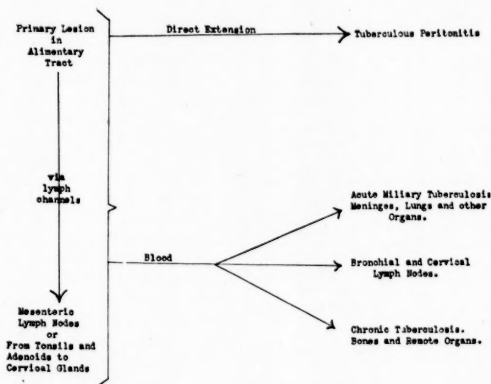
"Yet every week," he continues, "cows are shipped into the Brighton market from all over New England which are insured against a positive tuberculin reaction by 'plugging' with a dose a fortnight before the official test is to be made."

bedded in mucous masses, fibrin clots and tissue shreds which protected them from the heat. It will be recalled that Massachusetts law requires the heating of milk to not less than 140° nor more than 150° F. (preferably 145°), for not less than 20 minutes, for legal pasteurization.

It goes without saying that boiling milk certainly kills all ordinary pathogenic bacteria.

The Federal Bureau of Animal Industry took up the eradication of tuberculosis from the herds in the District of Columbia in 1910. In 1917 legislation made possible the adoption of a nation-wide campaign with the coöperation of the various States, and at the present time every State in the Union, together with Alaska and the Hawaiian Islands, are coöperating.

Briefly, the general campaign as it applies to cattle is conducted along two lines. Herds, on application of the owners, may be tested by state and government officials, certain conditions, such as removal of reactors, being agreed to. Herds found to be free from tuberculosis on two



(Modified from Hamburger)

#### PREVENTIVE MEASURES

The statement is made definitely and emphatically in the Report of the Special Milk Board that pasteurization, properly performed, will undoubtedly remove all danger of transmission of tuberculosis through milk.

Swift<sup>8</sup> apparently doubts this efficiency of pasteurization in controlling the transmission of bovine tuberculosis. He cites the experiments of Foster and Rullman, who found that the tubercle bacilli remained alive in milk kept at 140° F. for 45 minutes, and of De Jong, who found living tubercle bacilli after an exposure from 159.8° to 161.6° for 30 minutes. This survival of the bacilli in naturally infected milk he attributes to the fact that the organisms are im-

successive annual tests are accredited and a certificate given to the owner by the state and federal governments. Animals from such herds may be shipped interstate without further tuberculin testing for a period of one year. The progress of this plan is given in Table 2.<sup>3</sup>

The second line of attack is that of area eradication. By this method a unit territory, generally a county, is worked with the coöperation of the owners, part of the expense being borne by the county. In some States official tuberculin testing is made compulsory in a county or township where 51 per cent. of the owners vote to adopt the eradication work. Increased herd value is added to the other benefits of complete eradication.

In Massachusetts, the last State to adopt eradication work, the total number of herds under supervision of the State and Bureau being tested annually with the view of becoming accredited is 250, containing 7500 cattle. There are 85 fully accredited herds containing 3114 cattle, and 150 herds containing over 2500 cattle which have passed one or more clean tests in the process of accreditation. In the New England States there are approximately 20,000 herds containing 250,000 cattle under supervision, of

danger. The complete eradication of bovine tuberculosis is a goal to be worked for, and we hope to be attained, but its attainment is not in the near future.

The proper pasteurization of milk, despite the views of some investigators, undoubtedly removes the danger from bovine tuberculosis, as does boiling.

The milk from which subsidiary food products are taken or manufactured should be subjected to the same precautionary measures as milk

TABLE 2.—Status of cooperative tuberculosis-eradication work, including all herds under supervision, September 1, 1923.

State.	Passed one test.		Accredited.		Under supervision.	
	Herds.	Cattle.	Herds.	Cattle.	Herds.	Cattle.
Alabama.....	660	17,144	78	3,202	798	23,211
Arizona.....	19	1,445	.....	.....	32	1,510
Arkansas.....	39	845	35	1,084	81	2,000
California.....	368	3,694	0	0	467	8,914
Colorado.....	1	760	.....	.....	37	480
Connecticut.....	553	9,977	104	2,569	832	18,563
Delaware.....	1,060	4,430	230	1,671	2,069	10,687
District of Columbia.....	313	342	30	797	345	1,166
Florida.....	3,288	25,198	100	3,575	4,184	47,499
Georgia.....	2,068	30,494	22	1,727	2,270	40,831
Idaho.....	5,323	44,757	127	4,256	6,086	55,878
Illinois.....	740	13,463	407	9,332	4,210	31,470
Indiana.....	10,158	71,990	1,535	23,210	12,962	118,886
Iowa.....	4,024	63,798	1,059	28,298	6,549	133,701
Kansas.....	433	11,200	398	12,400	1,016	32,219
Kentucky.....	6,384	47,112	206	5,909	7,901	66,261
Louisiana.....	542	11,993	60	3,238	639	18,528
Maine.....	7,884	63,198	634	7,852	8,017	71,650
Maryland.....	1,986	18,836	408	8,077	3,907	37,649
Massachusetts.....	76	2,083	63	2,363	242	7,138
Michigan.....	18,519	145,384	395	7,630	21,236	181,732
Minnesota.....	2,245	33,235	1,438	37,511	4,752	105,860
Mississippi.....	354	11,095	140	3,282	672	13,882
Missouri.....	20,715	201,591	410	12,808	21,799	231,562
Montana.....	11,160	141,182	120	6,826	12,117	175,100
Nebraska.....	8,799	106,135	234	6,536	10,913	116,094
Nevada.....	1,333	8,951	9	963	1,884	18,612
New Hampshire.....	358	6,120	65	1,718	871	13,238
New Jersey.....	129	1,919	79	2,005	332	8,723
New Mexico.....	749	5,832	0	0	941	7,631
New York.....	8,136	92,869	707	14,472	10,555	247,555
North Carolina.....	29,318	162,825	277	5,604	30,219	110,635
North Dakota.....	3,716	65,395	809	17,837	5,626	110,338
Ohio.....	1,674	23,267	953	16,477	3,180	51,425
Oklahoma.....	376	9,879	197	6,790	1,130	23,478
Oregon.....	9,888	95,427	180	4,451	10,068	96,878
Pennsylvania.....	1,029	14,416	1,358	22,391	2,638	41,757
Rhode Island.....	22	607	14	397	48	1,344
South Carolina.....	943	11,966	79	2,656	2,002	15,537
South Dakota.....	281	7,343	200	5,843	650	17,146
Tennessee.....	681	13,550	223	8,696	6,563	62,824
Texas.....	41	1,457	71	2,873	8,063	18,067
Utah.....	6,398	25,631	77	2,457	7,041	46,043
Vermont.....	2,126	31,584	1,396	23,935	4,403	76,486
Virginia.....	1,294	14,284	736	16,846	2,439	42,935
Washington.....	7,015	55,945	128	2,879	7,994	66,739
West Virginia.....	2,143	18,154	213	4,608	2,620	28,114
Wisconsin.....	3,011	32,360	1,820	41,151	5,800	134,141
Wyoming.....	3,170	31,239	3	110	3,499	35,945
Total.....	191,669	1,791,651	18,114	401,429	244,871	2,892,776

which 4000 herds containing 60,000 cattle are fully accredited. In the entire United States approximately 350,000 cattle are being tested each month, and at the present time there are over 70,000 herds containing over 900,000 cattle on the waiting list.<sup>9</sup>

#### SUMMARY

Milk-borne tuberculosis remains a definite and grave menace, particularly to children. Certification of milk does not entirely remove this

intended to be sold or consumed in its original form.

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(To be continued)

# DYSTOCIA OF THE SHOULDERS IN HEAD PRESENTATIONS

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IN present-day obstetric teaching little emphasis is placed upon the possibility of difficulty in the birth of the shoulders after successful delivery of the foregoing head. It seems to be taken for granted that if the head can be safely delivered, the shoulders will follow in due course without excessive difficulty. It is fair to say that this is usually true. That there are exceptions to this rule, however, is shown by the occurrence of seven cases of fetal injury (in one case fetal death) resulting from difficulty in the delivery of the shoulders after successful delivery of the head in vertex presentations among my private patients during the last five years (1918 to 1922 inclusive).

These seven cases occurred among about 1075 labors, making the ratio of frequency about once in each one hundred and fifty deliveries. They comprised one stillbirth, three brachial paralyses, one fracture of the humerus, and two fractures of the clavicle. Williams ("Obstetrics," New York and London, 1920: p. 859) and DeLee ("Principles and Practice of Obstetrics," Philadelphia and London, 1916: p. 1011) refer to the possibility of difficulty in delivery of the shoulders after birth of the head. Ehrenfest ("Birth Injuries of the Child," New York and London, 1922) devotes a chapter each to injuries of the clavicle and the brachial plexus, in which he discusses the causes of dystocia of the shoulders in vertex as well as in breech presentations. Muss (*Zentr. f. Gyn.*, Leipzig, 1905, xxix, 1025) found 22 fractures of the clavicle among 1700 vertex deliveries, and Hauch (*Zentr. f. Gyn.*, 1905, xxix, 1025) 16 among 2531.

There has accumulated a considerable literature on brachial paralysis in the newborn, but chiefly from the neurologic or the orthopedic standpoint rather than from the obstetrical. The observations most pertinent to the subject under consideration in this paper are those of Weil (*Zentr. f. Chir.*, 1921, xlvii, 1312). He showed that traction on the shoulder, with the head bent forcibly to the other side, put the fibers of the brachial plexus under great tension. I have observed that when, in addition, the face is rotated away from the obstructed shoulder the tissues of the neck (of which the brachial plexus forms a part) are put under still greater tension. These points are of the utmost importance in the prophylaxis of birth injuries.

A somewhat condensed record of my seven cases, with especial reference to the apparent factors from which the dystocia resulted, follows:

CASE 1. Mrs. R. B. Primigravida. Measurements: External conj. 21 c.m., interspinous 23 c.m., inter-cristal 27 c.m. Outlet moderately contracted. Transverse diameter of outlet 8 c.m. Patient went into labor at term Jan. 13, 1918. After six hours of hard labor the os was found to be fully dilated; membranes ruptured before labor began, head presenting O.D.P., height of presenting part mid-pelvis. Under other a mid forceps, using the Scanzoni maneuver, was done. The head delivered without undue difficulty, but owing to the contracted outlet, narrow arch and thick os pubis the shoulders stuck and were freed and delivered only after great effort. The baby weighed 8 lbs. and sustained an Erb's type paralysis of the left arm, which cleared up after some months electrical treatment and massage.

The patient became pregnant again two years later. After an hour and a half of labor the head was delivered about three minutes before I arrived at the case. The shoulders again stuck and the nurse was unable to free them. However, by careful rotation and traction I was able to deliver a badly asphyxiated baby of the same weight as the first, which had no paralysis and, after resuscitation, made a good recovery.

CASE 2. Mrs. M. P. II Gravida. Apparently normal pelvis. First labor normal. Normal delivery at term, Aug. 17, 1918. Very slight difficulty with shoulders, due to lack of good pains and perhaps faulty rotation. Sustained greenstick fracture of right clavicle which gave no trouble.

CASE 3. Mrs. L. M. II Gravida. First labor, difficult forceps in another city. Baby living and well. Pelvic measurements normal in all diameters. Due May 31, 1919. Went into labor June 7. After five hours of good labor the os was found fully dilated and the head low in O.D.A. position. After one hour more, without progress, the patient was etherized and forceps applied. No difficulty was met with in the delivery of the head, but the shoulders stuck even after careful rotation, first in the oblique, and then into the antero-posterior diameter. During these maneuvers the baby breathed several times, but delivery of the shoulders was effected only after working for fifteen minutes and fracturing both clavicles. The baby weighed 11 lbs. and was exceedingly thickset. Resuscitation of course failed.

The patient became pregnant again within a year, and after careful dieting gave birth to an eight-pound baby without difficulty.

CASE 4. Mrs. D. H. X Gravida. First seven labors normal. Eighth and ninth labors operative. Ninth baby weight 12½ lbs. and sustained a brachial paralysis from which it recovered. Pelvic measurements normal. Os pubis thick. Arch somewhat sharp but bischial diameter 10 c.m. The patient was not co-operative in the matter of diet and came to term in September, 1919, with an obviously large child. She went into labor Sept. 23, and delivered the head normally O.D.P. without difficulty. Labor then stopped altogether. After an ineffectual attempt to deliver the shoulders by Kristeller's maneuver, profiting by her past history and my experience with Case 3, she was quickly put under ether. The posterior arm was then searched for, freed and delivered, fracturing the humerus in doing so. This, however, gave room enough so that the anterior shoulder and trunk were now delivered without difficulty. The baby weighed 13 lbs. 3 oz. The humerus united well and mother and baby made an uninterrupted recovery.

CASE 5. Mrs. S. R. III Gravida. Measurements: External conj. 18 c.m., interspinous 23 c.m., inter-cristal 25 c.m. Outlet normal. Wide arch. First



labor in another city resulted in a stillbirth due to breech presentation, in 1915. Second labor in 1918 resulted in the normal delivery of a  $7\frac{1}{2}$  lb. child, O.D.P. Third pregnancy normal. Went into labor at term Nov. 13, 1921. After a four-hour labor, the os having been fully dilated one hour, without progress, she was etherized and forceps applied to a low O.D.P. After delivery of the head, traction and pressure from above failed to dislodge the shoulders. Exploration then revealed that the shoulders had rotated prematurely into the antero-posterior diameter (before passing through the superior strait). The shoulders were then rotated back into the oblique diameter, brought through the brim, rotated to the antero-posterior again and then delivered. The baby weighed  $7\frac{1}{2}$  lbs., as had the second, but sustained a brachial paralysis of the right arm which cleared up only after months of treatment.

CASE 6. Mrs. P. D. I Gravid. Measurements: External conj. 21 c.m., interspinous 26 c.m., intercrystal 30 c.m. Outlet narrow. Bischial 8 c.m. Os pubis thick and horizontal. Went into labor at term Jan. 31, 1921. Delivered head normally O.L.A. Shoulders freed with great difficulty because of large baby and contracted outlet. Brachial paralysis of right arm, which cleared up in a few weeks. Baby weighed  $10\frac{1}{2}$  lbs. at birth.

CASE 7. Mrs. E. G. I Gravid. Measurements: External conj. 21 c.m., interspinous 28 c.m., intercrystal 30 c.m. Outlet slightly contracted. Bischial 9 c.m. Os pubis thick and horizontal. Went into labor at term Nov. 21, 1920. After a fifteen-hour labor the head was easily delivered by low forceps to a partly rotated O.D.P. The shoulders were freed with great difficulty owing to the thick os pubis and narrow arch. The baby sustained a greenstick fracture of the left clavicle, but was otherwise uninjured. Convalescence was normal. Baby weighed 7 lbs. 2 oz.

March 18, 1923, was again delivered, this time normal and without difficulty, of a 7 lb. 3 oz. baby.

The above résumé at once suggests three factors which may enter into the causation of dystocia of the shoulders:

1. Excessive size of fetus (Cases 3 and 4).
2. Contraction of pelvic outlet (Cases 1, 6 and 7).
3. Faulty mechanism of labor (Cases 2 and 5).

Of course other contributing causes, such as *inertia uteri*, may also influence dystocia of the shoulders, but the above-mentioned factors are undoubtedly the primary ones. One more fact is worthy of note; namely, that in these cases where the clavicle was broken there was no injury to the brachial plexus, and where brachial paralysis resulted, the clavicle had not fractured. The significance of this is that when the clavicle breaks, the resistance to the passage of the shoulders diminishes and they slip through without undue tension upon the soft tissues of the neck. On the other hand, when the clavicle holds, the abduction of the shoulder increases until the tension upon the soft parts is too great for the relatively delicate nerve fibers to withstand.

The influence of excessive size of the fetus upon the delivery of the shoulders is sufficiently

obvious. It should be combated so far as possible by proper dieting.

Contraction of the pelvic outlet is the most common form of pelvic contraction met with in this country. In its most usual form it is manifested by a V-shaped pubic arch, and a broad, horizontal os pubis, which not only has the effect of diminishing the actual diameters of the space through which the shoulders have to pass, but also to modify the axis through which they must pass. Because of the breadth of the os pubis and the narrowness of the arch, both the head and the shoulders must pass through the outlet at a point considerably posterior to that through which they would pass in a normal pelvis. This means a greater abduction of the head from the anterior shoulder, with resulting danger to the brachial plexus and the clavicle.

The question of the mechanism of labor in the birth of the shoulders naturally brings up for discussion the proper method of effecting the delivery of the shoulders. In the unanesthetized patient, where the delivery of the shoulders is brought about by the contraction of the uterus, aided by the efforts of the patient, the force being applied from above in the natural axis, the mechanism follows its normal course with very little help. In the anesthetized patient or one in whom the shoulders are arrested either because of abnormal size, contracted outlet or faulty mechanism, the proper method of delivery of the shoulders becomes of the utmost importance. Normally, the shoulders descend through the brim in the opposite oblique diameter from that through which the antero-posterior diameter of the head has descended, although occasionally they pass the brim in the same diameter (e.g., the head may descend as an O. L. A. and the shoulders as in an O. D. A.). The anterior shoulder then rotates to the arch, and the shoulders are born in the antero-posterior diameter.

Delivery of the shoulders should not be accomplished solely by traction on the head. The accoucheur should gently guide the head downward toward the floor until the anterior shoulder comes into view, and then upward until the posterior shoulder is born; but the force by which the shoulders advance should be applied from above by the assistant or nurse by means of Kristeller's maneuver.

Kristeller's maneuver was originally intended to supplement the contractions of the uterus, but may with greater safety be used in the anesthetized patient or between contractions. It is performed as follows: With the palms of both hands over the fundus of the uterus, pressure is exerted upon the uterus in the axis of the superior strait, while the accoucheur simply guides the head or at most makes only gentle traction. Caution must be observed to verify

the relation of the head to the shoulders after restitution, so as not to put the brachial plexus on the stretch by rotating the head to one side or the other while making traction.

#### CONCLUSIONS

1. Difficulty in the delivery of the shoulders in head presentations, resulting in fetal injury, is of not infrequent occurrence.
2. The chief factors concerned in dystocia of the shoulders in head presentations are: excessive size of fetus, contraction of the pelvic outlet, and faulty mechanism of labor.
3. Delivery of the shoulders should be effected not by forcible traction upon the head, but by the natural expulsive forces or by Kristeller's maneuver.

#### THE VALUE OF CLINICAL LABORATORY EXAMINATIONS\*

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THE sources of possible error in the application of laboratory methods to diagnosis are twofold: those due to the methods themselves or faulty technic in their use, and those due to inaccurate reasoning from accurate results. I should like, therefore, to consider some of the more important clinical-laboratory tests as regards the interpretation of results, their limitations and the possible errors inherent in the methods themselves. Much that I shall say is, perhaps, familiar to many of you, yet the re-emphasizing of well-recognized principles in medicine cannot but make for real progress in diagnosis and therapy.

*The Sputum.*—The term, strictly speaking, should be confined to material coming from the respiratory passages and may, therefore, be laryngeal, bronchial or alveolar in origin. With this definition in mind, we may consider any sputum as pathologic. This does not mean that serious disease obtains, necessarily, when a small amount exists, as patients with catarrhal conditions of the naso-pharynx frequently have an accumulation of material which has settled in the upper bronchial tubes overnight and is raised on rising in the morning; also, city dwellers, living in an atmosphere loaded with soot and dirt, commonly raise a certain amount of sputum which arises from an increased activity of the mucous membranes to compensate for the dryness and irritation which these foreign substances have caused.

It is to be regretted that sputum examinations all too frequently are limited to the search for

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a few specific organisms, more particularly pneumococci and tubercle bacilli. The amount, consistency, color and microscopic appearance may be of great aid in leading to correct diagnoses, as the old masters in days past keenly appreciated. Whatever examinations may be desired, it is essential that true sputum, as free as possible from nasal and oral secretions, be collected in clean, sterile containers and examined as quickly as possible.

Not infrequently one has to decide whether blood in the sputum has arisen in the lungs, been regurgitated from the stomach, comes from a ruptured esophageal varix or is due to local conditions in the mouth or naso-pharynx. Direct examinations will rule out epistaxis, capillary angiomata, adenoids, ulcerations, etc.; in the absence of chronic heart disease, senile or cirrhotic liver and splenic conditions, one can usually exclude esophageal varices. In true hemoptysis the blood is frothy, bright red, alkaline in reaction, usually associated with mucopurulent material and not mixed with food particles. Hematemesis, in contrast, yields dark red, usually clotted blood which is acid in reaction and mixed with food particles.

A condition not infrequently confused with phthisis is chronic, passive congestion of the lungs, due to mitral disease, especially stenosis. These cases commonly have continued cough, dyspnea, often hemoptysis and loss of weight. Physical exploration of the lungs will not afford any reliable evidence for a differential diagnosis; that of the heart, if stenosis be discovered, makes tuberculosis improbable. The sputum, however, gives most definite information and that not alone by the absence of tubercle bacilli, but by the strong, positive evidence of large cells filled with a brownish pigment (so-called heart-failure cells) which are usually present in considerable numbers.

Hemoptysis in a young, apparently healthy person should be regarded as presumptive evidence of tuberculosis and treated as such until positively ruled out. This type of hemoptysis occurs early in the disease, often as the first symptom, unaccompanied by sputum and often unassociated with cough, its source being a congested bronchus near the tuberculous focus. Often during the course of a well-established case an ulcerated vessel in the wall of a cavity produces a hemoptysis which may be abundant and protracted; or again, late in an advanced case a ruptured pulmonary aneurism in the wall of a cavity yields a copious and commonly fatal hemorrhage.

Regarding the examination of the sputum for tubercle bacilli, too much emphasis cannot be placed upon collecting, in chemically clean containers, true sputum raised deep from the chest, and on selecting for study, especially, the little grayish (cheesy) particles and mucopurulent

streaks. Only positive findings, free from sources of error, are of absolute diagnostic significance, as the absence of tubercle bacilli means only that bronchial ulceration has not occurred, so that failure to submit repeated specimens is inexcusable. Even with these precautions, undoubtedly a fair number of cases of pulmonary tuberculosis will be found in which tubercle bacilli are not demonstrable.

In many cases of diphtheria there is a striking discrepancy between the clinical and bacteriological diagnosis, as the organism is associated with all grades of throat affections, from a mild catarrh to a sloughing, gangrenous process. As an absolute diagnosis rests on finding virulent diphtheria bacilli, bacteriological examination is the only safe way, especially in mild and early cases; and a single negative culture must never be taken as conclusive. For diagnostic purposes, all bacilli present in suspicious throats having the morphologic and cultural characteristics of diphtheria bacilli are to be regarded as virulent. But it must be remembered that cultures of virulent diphtheria bacilli often present distinctly different morphologic pictures, varying from the typical barred and granular forms, so that morphology alone is not a constant index of virulence. Such cases, on microscopic examination alone, warrant only a report of suspicious, and if repeated cultures from the case continue to yield atypical bacilli, virulence tests on a guinea pig will alone decide conclusively.

While but relatively few disease processes are associated with diagnostic findings in the blood, yet many are characterized by definite manifestations which are invaluable aids to the clinician. It is, therefore, of the utmost importance that we should have a proper knowledge of blood normals in order to understand the various deviations which characterize abnormal blood. It is, likewise, essential to remember that certain physiologic as well as pathologic conditions influence the quantity and quality of the blood; so great are the effects of digestion, exercise, massage, nervous factors, heat and cold, that the varying hematological findings reported in single cases are not to be wondered at. And, finally, reliable results can only be obtained by those familiar, not only with the principles involved and the routine technic, but with the many little "kinks" in the actual methods, as grave error may readily be introduced at many points.

The error incident to any test which requires the matching of shades of colors is naturally considerable and varies with different workers. The determination of the hemoglobin percentage by the ordinary methods therefore can be only approximate, but in most cases is sufficiently accurate for clinical purposes. It must also be remembered that the hemoglobin varies with

age, being greatest in the new-born, declining somewhat to the fifth year and thereafter gradually rising, until about the fifteenth year, when it reaches the maximum which is maintained up until old age. The color-index, however, which expresses the proportion of hemoglobin to red blood cells, is a quite constant value in the normal individual and changes in it are of considerable significance.

It is frequently of especial importance to examine the blood for the presence or absence of bacteria. In typhoid the value of blood cultures in making early diagnoses cannot be overestimated and should be undertaken in every suspicious fever. Again in a case of moderate, intermittent, protracted fever with scanty or no physical findings, culture will often yield a streptococcus viridans and prove what otherwise at best could only be suspected. In osteomyelitis, anthrax, and septic infections culture is particularly helpful in diagnosis as well as prognosis and therapy. Success in this work depends upon obtaining a sufficient quantity of blood under rigid asepsis and culturing on the proper media. Usually the offending organism, when present, is obtained in pure culture, as mixed infection is rare, so that finding of more than one type speaks for contamination.

Errors of observation regarding the classification of nucleated red cells and leucocytes are not uncommon; even among hematologists there is not a unanimity of opinion regarding the exact limits of certain forms of cells. So that the practitioner, here as elsewhere, should accept no diagnosis without a full consideration of the clinical evidence. But it is in estimating the value of evidence obtained from blood counts that the most frequent, and at times serious, errors are made.

In the first rank comes the mistakes in the diagnosis of febrile affections, especially when remittent or intermittent and when unaccompanied by well-marked local symptoms. A marked leucocytosis is a sign which should never be neglected. In continued fevers it always points to the existence of sepsis, and unless there are well-marked complications of an inflammatory nature, it should always lead to a careful revision of a diagnosis of typhoid fever. In cases of obscure septic conditions errors are common and every means of investigation should be employed; a thorough physical examination with particular attention to the teeth, sinuses, gastro-intestinal tract, genito-urinary and lymphatic systems, followed by analyses of the blood, urine and stools, should constitute the minimum of routine in such cases.

Unfortunately, leucocytosis cannot be accorded complete confidence as a sign of inflammatory trouble. On the one hand, it is from time to time absent in severe cases, as in general peritonitis and pneumonia; on the other hand, very

exceptionally it may be well-marked early in typhoid fever. While a generous leucocytosis, usually with a polymorphonuclear increase, is the rule in acute appendicitis, all too frequently it is absent in so-called chronic appendicitis and, occasionally, an actual leucopenia may be found in both acute and chronic forms. A valuable aid in diagnosing and differentiating chronic appendicitis is the more or less constant increase in the absolute number of large mononuclears and transitionals. Such a transitional leucocytosis is absent in peptic ulcer, cholecystitis, renal colic, etc., unless a complicating appendicitis exists.

In cases showing a leucocytosis with otherwise essentially negative findings, one must rule out physiologic causes as digestion and pregnancy, exclude toxic conditions as acidosis, gout, metallic poisoning and medication with certain drugs and keep in mind malignancy, an obscure endocarditis or possible endocrine disturbance. In general it may be said that leucocytosis represents the reaction of the individual to the disease. A high count may mean a vigorous response to the infection; a low one either poor reaction to severe infection or the normal reactivity to a mild infection.

In the field of true blood diseases the matter lies somewhat differently. Here the main, sometimes the entire, diagnostic evidence is found in the blood and the laboratory report should carry the greatest weight. Considerable confusion has arisen at times in distinguishing the severe secondary anemias from the so-called Pernicious Anemia. The general tendency at present is to give up entirely the use of the term Pernicious Anemia, since its sole criterion, which is perniciousness, leads to the inclusion under one heading of diseases that are entirely different from one another. We now reserve the term Addison-Biermer Anemia for cases of chronic, hemolytic anemia in which, on systematic examination, we can discover no cause; which develop, usually gradually, in mid-life, follow a progressively downward course with temporary remissions, show a typical blood picture, and are usually associated with gastro-intestinal, cardio-respiratory, and neurological symptoms.

In diagnosing anemias, it must be remembered that pallor, whether of the skin or mucous membrane, may be due to pseudo-anemia in which there is an abnormally small supply of blood in the peripheral capillary vessels; that the puffy face, swollen ankles or albumin in the urine may be mistaken for nephritis; that the pigmentation may suggest Addison's disease; that the shortness of breath and palpitation may be attributed to heart disease; and that the gastric symptoms may lead to an erroneous diagnosis of malignancy.

The past five years have witnessed remarkable improvements in blood chemistry so that today

it far surpasses in value the most exact and intricate quantitative urinalyses. Its findings, representing, as they do, an estimation of the retained products of metabolism, as over against the determination of pathologically changed ingredients in an excretory fluid such as the urine, give a far better idea of existing metabolic changes and furnish a superior basis for the diagnostic and prognostic valuation of a case.

As the kidney is the great regulator of the composition of the blood, maintaining a practically constant level of non-protein nitrogen, it is in disorders of this organ especially that variations from the normal furnish valuable information. While in many cases of nephritis the non-protein nitrogen, as well as the urea, fall within normal limits, in the majority of cases an increase in the severity of the nephritis will be accompanied by a corresponding increase in the non-protein nitrogen and urea. In cases tending toward uremia, or showing actual uremia, the values are markedly increased; amounts of 100 mg. or over per 100 c.c. of blood are rarely seen in conditions other than uremia so that this factor assumes great importance in diagnosis. Further, the prognostic value of this constituent is shown in the fact that patients with high non-protein nitrogen do not, as a rule, survive for a very long period. Another valuable point is that it furnished a guide to the proper diet to be allowed nephritics, as cases with high non-protein nitrogen require restriction of proteins. In the eclampsias of pregnancy we seldom find a marked increase, which may serve to rule out uremia.

In summary, then, urinalysis tells us only what is excreted, while blood analysis shows what is retained. Many patients may show albumin and casts, either alone or in combination, and yet not be seriously ill nor offer a bad prognosis. If, however, such patients show high nitrogen and urea figures it indicates that the permeability of the kidneys is considerably affected and the outlook is vastly different; in general, the degree of nitrogen retention is an index of the extent of renal involvement. Finally, among that large group of cardio-renal cases it is impossible to estimate what part of the picture-complex is due to the kidneys unless a determination of their actual working ability be made.

Urea is the most important constituent of the total non-protein nitrogen of the blood. Being excreted largely through the kidneys, serious disturbances of these organs is frequently associated with retention, and marked retention of urea is a positive indication of almost complete renal insufficiency. However, a large part of the renal parenchyma may be pathological and yet no retention of urea occur, providing there is sufficient healthy tissue remaining to take care of ordinary systemic requirements: *e.g.*, in in-

terstitial or diffuse nephritis and, rarely, chronic passive congestion.

High blood uric acid is usually found in gout, acute and chronic nephritis, lead and bichloride poisoning, and at times in malignancy and severe febrile conditions. Uncomplicated cases of gout usually show an increase in uric acid with normal nitrogen and urea figures, whereas early interstitial nephritis shows a retention of all three substances. Uric acid determinations, therefore, to be of any value in the diagnosis of gout, must be taken in connection with a high or low non-protein nitrogen.

Non-protein nitrogen, urea and uric acid are derived from the food ingested and when present in the blood in abnormally high amounts indicate that the "nitrogen balance," *i.e.*, the ratio between the nitrogen ingested and that excreted, is upset with a retention of waste products. Creatinine, on the other hand, is entirely of endogenous origin, being derived from the body tissues themselves, especially muscle, and is practically unaffected by the nature and amount of food taken. Moreover, creatinine is the most readily excreted of all nitrogenous waste products, so that its retention in the blood is of great significance. Retention practically always means renal impairment and high values strongly indicative of impending uremia.

When the subject of diabetes is approached, I confess I am somewhat at a loss as to just where to begin. Such epoch-making strides have been recently made that the near-future will perhaps see an entirely new régime of diabetic therapy supplanting our present starvation methods. And I am confident that both diagnosis and therapy will be more and more accurately controlled by routine blood-sugar estimations. Tests based only upon the presence or absence of sugar in the urine set an entirely false standard and are subject to considerable error through wide variations in renal permeability. Sugar appears in the urine only when its concentration in the blood reaches a certain point (the so-called renal threshold) and this renal threshold varies with individuals; so that a patient may be truly diabetic with a high blood sugar while his urinary output of glucose is slight or at times absent; conversely, a mild case of diabetes with comparatively low blood sugar may pass a urine containing large quantities of glucose.

Extreme obesity is a phenomenon which has been regarded from many angles; as a joke in the sense of Falstaff and his comic successors; as a curiosity in side-shows; as a bond of fellowship in certain clubs; as the essence of beauty in lands where brides are fattened for the market; as an affliction and humiliation in this age of flappers and jazz hounds; as the visible proof of prosperity among some peoples; and as an internal secretory disturbance by that clever dabbler in endocrinology, whose weekly post-

cards clog the mail. A moderate store of body fat probably favors general vigor and resistance and we are ready to admit it is frequently accompanied by a placidity of disposition, a most valuable antidote for the neurotic tendencies of this age. But, seriously speaking, it has long been known that obesity and diabetes are commonly associated, so that the mere existence of the former should be sufficient warrant for carefully ruling out an early diabetes or discovering a diabetic tendency; for prophylactic measures at this stage will serve as the proverbial ounce of prevention. In short, blood-sugar estimations are a most wise precaution in all persons suspected of a diabetic tendency, in all very obese persons, members of diabetic families and all cases with the history of gallstone or pancreatic disease.

The greatest value of the examination of the urine undoubtedly lies in the direct evidence it may afford of disease in the urinary passages or kidneys and of diabetes. To most practitioners this means the application of the familiar tests for albumin and sugar, and certainly they have been the foundation of clinical urinalysis. But study of the urine also yields valuable information as to normal or deranged metabolism. The simple determination of water excretion or retention in excess of intake, as estimated by the total output, is often an indispensable aid in estimating the grade of myocardial insufficiency; the reaction is of importance through its relation to various conditions of acidosis in the body; while in the urine we can frequently detect various drugs and poisons.

It cannot be too strongly insisted upon that the examination of single specimens can under no condition replace the routine study of the total 24-hour output. The morphologic elements are best seen in fresh specimens; certain qualitative tests when positive are decisive; or it may be desirable to study the urine at different hours. In these ways the examination of a single specimen may be of great use. But negative tests in a single specimen must not be taken as decisive and no conclusions as to average specific gravity, reaction, or quantitative excretion of any normal or pathologic constituent be drawn from a single voiding. Moreover, with lack of knowledge of the amount of total output we lose one of the most valuable single facts obtainable from urine examination.

May any conclusions be drawn from the presence of albumin in the urine? Emphatically none, except that an albuminous urine is not normal and further investigation by other methods should be instituted to determine its source. The microscope gives most evidence on this point, but the whole examination furnishes only supportive information. On the other hand, the absence of albumin at one, or even repeated examinations, does not preclude the existence of



renal disease. Acute nephritis is, of course, excluded by its absence and in cardiac cases it rules out renal congestion and makes for a more hopeful prognosis. But the contracting kidney frequently fails for considerable periods to give albumin and cases of waxy kidney have been reported without albumin.

In the examination of the urine for sugar, physicians not uncommonly fail to appreciate the numerous errors into which one may be led by that universally employed reagent Fehling's Solution. It is quite a delicate test and certainly one of the most useful for just one purpose, to exclude the presence of glucose. Various drugs as salicylates, camphor, chloral, coal-tar products and alkaloids, and even abundant urates, will give some sort of a reduction. No reduction means no sugar, a reduction merely indicates the necessity for applying confirmatory tests. Of these, fermentation is the simplest and reliable if one is careful to use active yeast and stand the tube in a warm place.

Finally in drawing conclusions from urinary findings one must remember that the mere presence of sugar does not constitute diabetes; only its persistence after reduction of the carbohydrate intake to small amounts warrants the diagnosis; that unless a representative specimen of the 24-hour excretion is used, no conclusions can be drawn from the absence of albumin or sugar, nor can much be inferred from their presence; that quantity and specific gravity bear an inverse relation to one another and are meaningless when considered separately; and that a urine of constantly low gravity with decreased quantity, often without albumin, points strongly to the existence of a contracting kidney, one of the most frequent types of chronic nephropathies.

Time and the limits of your patience compel me to omit discussion of the spinal fluid, gastric contents, stools and the Wassermann reaction. In appropriate cases they yield evidence of considerable, and at times, diagnostic value.

I must also refrain from dwelling upon that most important of subjects, the periodic individual health survey. You are perhaps familiar with the traditional rôle of the Chinese physician, who is only paid by his patients as long as they remain well; and the basic idea is worthy of most serious consideration. Forward-looking physicians, are realizing that unless they are equipped to examine well patients and advise them how to remain well they are falling far short of the ideal standard. The conscious aim of practical medicine should lie beyond the mere cure of disease and alleviation of suffering. Its real goal should be the "Schönung therapie" of the Germans which, freely translated, means safeguarding therapy. And, our first and most important duty to anticipate and prevent disease is quite coördinate with our responsibility

as physicians for its cure, and more likely to succeed. And in the detection of the danger signals of incipient disease, the clinical laboratory can be of inestimable value.

The clinical laboratory is now so firmly established as an indispensable part of the outfit necessary for clinical studies that pretend to any kind of thoroughness, that one no longer assumes that any practitioner can do satisfactory work without calling upon it extensively for aid. But while relegating this work to others, the physician should not fail to keep himself thoroughly informed regarding the advantages and limitations of the various tests, for only by so doing will he escape errors in interpretation. Now and then the laboratory findings are pathognomonic, but this is only occasionally true, and practitioners often make the mistake of expecting too much of their colleague in the laboratory.

To the physician the laboratory is a right arm. Failure to recognize this fact and work in harmony with the laboratory, or an attitude of suspicion towards it, cuts off one of its main sources of strength and leads inevitably into impotence and danger. In this age of division of labor no one of us can do all. Whether working at the bedside or in the laboratory, we are all members of one organism, and to accomplish our duty to the community and to ourselves, we must work together as one organism; if at first it may seem that we are losing some precious individual privileges, we shall, on second thought, realize that by system and order, each working in his chosen field and coöperating with his colleagues to further the progress of the profession, we acquire powers as a body which are of infinitely greater value to the community at large as well as to each separate member.



# CARCINOMATA OF THE STOMACH, INCLUDING A STUDY OF ALL THE CASES OF PRIMARY CARCINOMA OF THE STOMACH (50) IN THE AUTOPSY RECORDS OF THE BOSTON CITY HOSPITAL AND THE PETER BENT BRIGHAM HOSPITAL

BY D. JOSEPH DUGGAN, A.B., M.D., BOSTON

ONE of the most striking facts in comparative pathology of cancer is the unique position of man in respect to his susceptibility to cancer of the stomach. While gastric cancer leads all other carcinomas as a cause of death in man, it is one of the rarest neoplasms in all other species. Beyond those of the rumen of the cow and the cardia of the horse, the recorded cases of gastric carcinoma observed in any species of animals are very few. In spite of the enormous number of mice autopsied in laboratories, and the fre-

quency of cancer in these animals, we can find but four reported cases of primary neoplasm in the stomach.<sup>1</sup>

Carcinoma of the stomach is the most common form of cancer in males, and is only exceeded in frequency in females by cancer of the uterus and of the breast.<sup>2</sup> The greatest loss from cancer is between the ages of forty and sixty years. From forty-five to fifty more women, after sixty more men are affected. More than one-third of cancers in men are found in the stomach.<sup>3</sup>

Ulcer is much more common and cancer much less common in women than in men. Wilson and MacCarty at the Mayo Clinic claim that 71 per cent. of their cases of gastric cancers were associated with ulcer, and 68 per cent. of ulcers were complicated with carcinoma.<sup>4</sup> Taylor and Miller found a history suggestive of pre-existing ulcer in only 17 per cent. of their cases, and they claim that the true incidence of such a preceding lesion does not exceed these figures.<sup>5</sup> The latter also found that the age incidence for the beginning of "ulcer" symptoms in the "ulcer-before-cancer" cases had its apex two decades later than did a series of 79 ulcer cases. This suggests that ulcers first giving rise to symptoms in middle life have a far greater likelihood of becoming malignant than do ulcers generally, or that the "ulcer-before-cancer" cases are really malignant from the beginning. Either of these considerations justifies and indicates prompt and radical surgical treatment of all patients first developing symptoms suggestive of ulcer after forty years of age.

Carcinoma of the stomach occurs usually in the form of localized thickening with ulceration, at the pylorus. The thickening varies and may be general without ulceration. The following types of cancer of the stomach are met with and are sufficiently different morphologically to fall into groups, although doubtless in principle they are alike.<sup>6</sup>

**Polypoid (Adeno) Carcinomata.** These occur anywhere on the stomach-wall and project into the lumen as broad, pedunculated, fungus-like masses which are rather soft and easily torn or broken apart. These tumors do not form metastases so rapidly as do the other types. Gland-like structures lined with cylindrical epithelium replace the normal mucosa. In places there appear to be papillomatous areas; in others through the whole depth of the tumor tissue there is a delicate stroma supporting wide and narrow, ramifying, tubular, epithelial structures. Necrosis and sloughing of the exposed tumor is of almost regular occurrence.

**Solid (Adeno) Carcinomata** of more sessile form are much denser than these fungating types. They, too, may grow anywhere in the stomach, but appear most frequently about the pylorus and lesser curvature. Various stages may be found, from a beginning, adenoma-like

growth of small size, to the huge, crater-like, excavated masses which occupy a great part of the wall of the stomach. Ordinarily, such tumors are found as rounded or irregular ulcers with thick, elevated, rounded edges which can be felt to project a short distance beneath the adjacent mucosa. On the outer surface the site of the cancer is readily made out by the rigidity of the wall. Dense adhesions to surrounding organs are very common, and metastatic nodules are usually found in the neighboring lymph-glands. The peritoneal surface, the omentum, the liver, the pleura, and the lungs are common sites of metastases. Metastases in the brain, kidneys, spleen, and other organs occur, but are not especially common.

Other solid, gastric cancers grow without such extensive ulceration and form an extremely dense, resistant mass, which may completely surround the pyloric portion and render it quite rigid. Occasionally thickening of the whole stomach wall is found. A section shows that the whole wall is infiltrated with a tumor in which the epithelial cells are relatively sparsely scattered in an abundant and dense stroma. This is the so-called diffuse scirrhus carcinoma of the stomach.

Microscopically, various appearances are met with in these forms of more solid carcinomata. In the tumor the glands become exceedingly irregular, with numerous branches, or are greatly enlarged and partly or completely filled with epithelial cells. The identity as glands may be lost, and instead there are cavities lined with several rows of cells, or there are solid groups of cells. The latter lose their regular arrangement, and grow at will in any direction into the stroma, which is thickly infiltrated with leucocytes. In other cases the whole tumor is made up of long tubules which do not seem to fray out into the tissue or to grow into more solid masses. In the scirrhus cancers there are very small, solid groups of cells set free from the ends of the glands. The extreme growth of connective tissue in response to this causes the mucosa, submucosa, and muscularis to become matted together into a leather-like mass in which tumor cell strands are sparsely scattered.

Another form of carcinoma of the stomach is the colloid cancer.<sup>7</sup> This form has a tendency to infiltrate the wall of the stomach widely, and there seems to be less attempt at connective tissue encapsulation. Metastasis to the viscera is found less often, and is relatively late; there is less tendency to early involvement of distant glands.

Colloid carcinoma of the stomach is quite common. Welch, in a review of 1221 malignant growths of the G. I. tract, found colloid carcinomas in 2.5 per cent., and Von Klein, in 395, found 5 per cent. Of 784 carcinomas of the stomach diagnosed at the Mayo Clinic from

specimens removed at operation, colloid carcinomas were found in 51 patients, 37 males and 14 females. The average age was 54.7 years.

In colloid carcinoma the epithelial cells possess an uncontrolled function of secreting a mucinous substance. Its accumulation is often destructive of the carcinoma cells. It is usually slow of growth and late to metastasize to glands and other organs. Local glands are often involved long before metastasis has reached distant glands. Though histologically less malignant, it is particularly difficult to eradicate. Death is often delayed, but the eventual mortality is greater than in other types of carcinoma.

A careful study of all autopsied cases of primary carcinoma of the stomach in the records of the Boston City and Peter Bent Brigham hospitals revealed the following interesting facts. The average age at which these patients came to autopsy was 55 years. Of the 50 cases studied, 11 were females and 39 males. The age incidence for both sexes was practically the same. The locations of the lesions in the stomach were as follows: pylorus 58 per cent., cardia 12 per cent., lesser curvature 18 per cent., fundus 8 per cent., generalized 2 per cent., not specified 2 per cent.

Of these 50 cases, 56 per cent. were adenocarcinomas, 20 per cent. were scirrhus, 8 per cent. colloid, and 16 per cent. not specified. The favorite seats of metastases were as follows: Regional lymph nodes in 52 per cent., liver in 58 per cent., pancreas in 26 per cent., lungs in 22 per cent., omentum in 18 per cent., mesenteric nodes 20 per cent., retroperitoneal nodes 16 per cent., peritoneum in 14 per cent., adrenals 12 per cent., spleen 10 per cent., diaphragm in 8 per cent., large and small intestines in 18 per cent., and mediastinum in 12 per cent. The less common seats of metastases were gall-bladder 6 per cent., esophagus 4 per cent., pleura 4 per cent., kidney 2 per cent., dura 2 per cent., nerves and vessels 2 per cent., heart 2 per cent., cervix uteri 2 per cent., bladder 2 per cent., and generalized in 2 per cent.

In one case a co-existing hypernephroma of the left kidney was found; in another, cancer of the cervix, and in nine cases benign tumors were found. Bilateral carcinoma of ovary was found in two cases. There was associated arteriosclerosis in sixteen cases, and chronic nephritis in six. In but two cases were there any luetic stigmata.

#### CONCLUSIONS

1. The human species is peculiarly and commonly susceptible to carcinoma of the stomach.
2. Males are affected more often than females, whereas the age incidence, 55 years, is the same for both in respect to mortality.
3. There is sufficient evidence that in older people the possibility of cancer developing from ulcer justifies and indicates prompt and radical surgical treatment.

4. Most cases of carcinoma are situated at the pylorus, where, if recognized early, complete surgical removal is least difficult.

5. The adenocarcinoma is the commonest form of carcinoma of the stomach.

6. Metastases occur most frequently in the regional lymph nodes, liver, pancreas, lungs, mesenteric nodes, and omentum.

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#### A HISTORY OF THE MASSACHUSETTS MEDICAL SOCIETY

BY DR. WALTER L. BURRAGE, SECRETARY

For a long time a need has been felt for a history of the oldest state medical society in the United States—organized in 1781 and with a continuous existence to the present. The minutes of the old Society have been carefully made and preserved from the very beginning. During the past seven years the present Secretary has devoted much time to their study and has made a succinct story beginning with the steps which led up to the founding and ending with the year 1922. This readable story is contained in seven chapters; special features are in eight more. Salient points are the biographies and the portraits of the chief officers, and there are many interesting illustrations and reproductions of old documents, notably the bill to incorporate the Society in May, 1781. An appendix contains complete lists of officers and useful tables, while all of the data are made available by a comprehensive index.

Early in November, 1923, the Plimpton Press of Norwood will issue a handsome book of 500 pages, bound in green cloth with the seal of the Society in gold on the front cover. The subscription price has been set at \$6.00, with the hope that enough subscriptions will be obtained from the loyal friends of the Society to cover the cost of publishing this noteworthy landmark in its life.

Subscriptions may be made to the agent of your District Medical Society or to Mr. James F. Ballard, Assistant Librarian, at the headquarters of the Society, 8 The Fenway, Boston 17. Mr. Ballard will deliver the books when ready.

NOTE: The above is a copy of a circular sent to the District Societies.

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### THE EDWARD K. DUNHAM LECTURESHIP

THE endowment at Harvard University of the Dunham Lectureship is of significance, not only for the medical faculty and students, but also for the general profession in New England. Schools of medicine in New York and Baltimore already have foundations with sufficient income to draw medical scientists of the first rank from other parts of America or from Europe to give short courses of lectures, but Boston has hitherto been unable to offer the necessary honorarium and so has had to be contented with casual guests who have been brought to this country by other institutions. The great advantages to be derived from these visiting lectureships are apparent wherever they have been held. The lectures have usually consisted of a presentation of the broader phases of the lecturer's own investigations, but of more value than the actual content of the addresses has been the possibility of a personal relationship, however slight, between the audience and the scholar from a distance, whose work has deeply affected their common profession. What a stimulus it is for young men absorbed in their medical studies to see, perhaps even to talk with some eminent person

of whom they have read and whom their teachers have quoted; and what an equally great opportunity it is for practitioners to be lifted for a moment from the routine of their daily lives into the atmosphere of research and into contact with those whom they recognize as their professional leaders! It is in this personal aspect of the Lectureship that Edward K. Dunham, in whose memory the Endowment has been given to Harvard University, would have been most deeply interested, for he himself was an intensely human person.

Dr. Dunham graduated from the Harvard Medical School in 1886 and spent the greater part of his professional life in New York, where he became Professor of Bacteriology and Pathology in Bellevue Medical College. He retained his association with the medical world of Boston, however, and a few years before his death, in 1922, renewed his intimacy with the Harvard Medical School through his service on the Visiting Committee of the Board of Overseers. Although for many years a teacher, and always deeply concerned with the practical application of medical science, both to the care of the individual patient and to the problems of public health, it was in the field of research that he found his greatest happiness, and the list of his contributions to chemistry and bacteriology contains many pieces of work of fundamental importance. He continued his investigations literally to the day of his death, for he was still engaged in writing the report of the Empyema Commission of the United States Army when he was suddenly stricken, at a time when he appeared to have many years of usefulness before him. This Report, based on clinical, chemical and bacteriological studies of cases of empyema in Army Hospitals during the World War, was fortunately so nearly finished that it could be completed by his associates, and its publication by the Medical Department of the Army in the near future will mark a significant step in the prophylaxis and treatment of empyema. But Dr. Dunham's contribution to medical science is by no means contained in the list of his own printed publications. He had the capacity of interesting himself whole-heartedly in the work of others, and many a young investigator, discouraged or foiled in the mazes of his problem, has had his path illuminated by the suggestions that always came from Dr. Dunham. In him were combined a gentle, generous spirit with an active, questioning mind. He was continually seeking for new ways of obtaining knowledge in some fruitful field, and cared little who did the work or who got the credit so long as a forward step was made. He had great wisdom and correspondingly great humility—that rare combination of qualities which characterizes the highest type of the searcher after truth. It is extraordinarily fitting that the memorial to Dr. Dunham

should take the form it has, and that through it generations of medical students and physicians will be brought into contact with the spirit of disinterested investigation which his life so well exemplified.

### A VACCINE FOR USE IN TREATING TUBERCULOSIS

CONSIDERABLE study is being focused on the production of a vaccine to be used in treating tuberculosis. Dr. Edward O. Otis felt interested in observing the effect of one type of vaccine now being used by Professor George Dreyer of Oxford University, England. The term defatted is, according to Professor Dreyer, inaccurate, and he uses the designation of diaplyte vaccine to the product secured by an attempt to remove part of the lipoidal portion and still leave the bacillus intact. By methods of staining it is claimed that this has been brought about. Others are trying to develop a vaccine by mechanically breaking up the bacilli, and in addition, to separate the protein from the lipid and waxy portions.

Dr. E. O. Otis observed the application and results of the use of the vaccine employed by Professor Dreyer during his recent trip abroad and felt that the patients seemed to have shown definite improvement.

It is encouraging to know that experiments are being made by scientific men, but it is too early to conclude that we are on the eve of discoveries that will revolutionize the treatment of tuberculosis. That tuberculosis in its earlier stages will be amenable to treatment by some vaccine or antitoxin is a reasonable hope based on our knowledge of the results obtained in dealing with other diseases of bacterial origin.

### CONFERENCE IN CHICAGO

DR. OLIN WEST, Secretary of the American Medical Association, has issued a call for a conference of secretaries of the constituent Medical Associations to be held in Chicago on November 16 and 17, this autumn. The expenses of the secretaries of the constituent societies will be paid by the American Medical Association. The presidents and presidents-elect of the constituent associations and the editors of the state journals are also invited, but no provision for the payment of the expenses of those in attendance, other than the secretaries, has been made.

Although our Secretary, Dr. Burrage, has not planned to attend the conference, he has sent recommendations for the consideration of important subjects which will appear in the program. Since there is no provision for paying

the expenses of the President incurred in attending this conference, the Massachusetts Medical Society should realize the importance of being represented in all national conferences and pay the expenses of its representatives if not otherwise provided.

### NEW YORK CITY CANCER INSTITUTE

THE Department of Health of New York City has established an institution under the above designation which will be devoted to the diagnosis, treatment, and cure of cancer patients. The Institute is equipped with all modern machinery, appliances, and personnel for diagnosis; also, surgical, radium, and high voltage x-ray therapy for the treatment of cancer.

It is a charitable institution for the poor of the city, and no charge will be made for any of the work to be done.

Ambulatory patients will be seen by members of the staff daily from 2 to 4 P.M., at 124 East 59th Street.

The hospital division is located on Welfare Island. An ambulance service is provided.

Beginning in October, 1923, there will be Clinical Conferences at 124 East 59th Street at which unusual cancer cases will be presented, and physicians who desire to take part in the Conferences should send their names and addresses to the Institute. Notices of the meetings will be sent to those who apply.

The capacity of the Institute is sufficient for the care of more than two hundred patients at the same time. Dr. Isaac Levin is director of the Institute, and many physicians and surgeons connected with the hospitals of the Department of Public Welfare are aiding in the work.

### MEDICAL MINUTE MEN

EDWARD H. OCHSNER, M.D., President of the Illinois State Medical Society, states in an open letter to the officers and workers in the county and branch societies that there is need of five hundred medical men and women who are well informed on many quasi-medical subjects in order that they may act in an advisory capacity to the federal, state, county and city governments when matters of public sanitation, public hygiene and other quasi-medical matters of public concern are under consideration. He calls for volunteers who will be ready at short notice to represent the profession before legislative bodies and the various civic organizations that may have to do with public health problems. He speaks of these volunteers as "medical minute men." He suggests that in the absence of a sufficient number of volunteers that persons should be chosen to act as occasion demands, and



the selection of these medical minute men should be of those conversant with the specific problems under consideration.

Similar recommendations have been made from time to time by various officials of medical bodies, but a complete organization of such representatives has seldom been effected. We know too well what is needed, but we are not inclined to perfect the organization. Voluntary service along these lines is unreliable, for few medical men are definitely familiar with the problems of public policies and very few feel inclined to appear aggressively before legislative committees. We have in this State our legislative committee of the Society and a large associate committee composed of selected members of the District Societies. This organization is to a large extent only on paper, for the active work is very largely conducted by the President and Secretary of the state committee, and except in rare instances few other representatives of the Society appear in the public hearings.

Dr. Horace D. Arnold organized a successful campaign and succeeded in securing recognition of the findings of the National Examining Board, and the Committee on State and National Legislation has tried to secure better medical registration laws, and there have been committees appointed to take charge of specific features of legislation, for example, the Workmen's Compensation Act, but the great number of bills dealing with other medical problems have not aroused sufficient interest among our members to lead them to participation in public discussion.

There is a great opportunity for developing an organized body of physicians who can instruct public officials. Action should be taken.

Our President has had legislative experience and knows what is needed. He will probably secure all needed coöperation.

#### FELLOWSHIPS IN MEDICINE OF THE NATIONAL RESEARCH COUNCIL

FREDERICK P. GAY announces in *Science* the names of thirty-one individuals who were appointed for work in the various fields of medicine under the Councils Fellowship:

Erritt C. Albritton, Ohio State University, Physiology.

William D. Andrus, University of Cincinnati, Surgery.

Barry J. Anson, Harvard Medical School, Anatomy.

Michael J. Bent, College of Physicians and Surgeons, New York City, Bacteriology.

William V. Cone, Iowa State University, Neuropathology.

George M. Curtis, Rush Medical School, Surgery-Medicine.

Loyal E. Davis, Northwestern University, Neuro-Surgery.

Ronald M. Ferry, Harvard Medical School, Biochemistry.

William G. Lennox, Harvard Medical School, Medicine.

Paul B. MacCready, Johns Hopkins Medical School, Laryngology.

Jay McLean, Leipzig, Surgery.

Paul Reznikoff, Harvard Medical School, Physiology-Medicine; Sanford M. Rosenthal, Johns Hopkins University, Pharmacology; Gerald S. Shibley, Columbia University, Medicine.

It is interesting to note that the Medical Fellowship Board recently decided that no fellows shall be appointed in a clinical branch of medicine unless they have served or planned to serve apprenticeship in one of the medical sciences. Therefore, with this end in view, a limited number of new fellows were appointed for one year beginning July 1, 1923, as follows:

Edwin Cowles Andrus, University of London, Physiology.

Howard B. Barker, University of Michigan, Anatomy.

Nathaniel Kleitman, Oxford University, England, Physiology.

David P. Morgan, Harvard Medical School, Biochemistry.

Erich W. Schwartz, University of London, Pharmacology.

Joseph M. Scott, Johns Hopkins School of Hygiene and Public Health, Bacteriology and Parasitology.

Harry P. Smith, Columbia University, Chemistry and Pathology.

It is worthy of note that but one of the fourteen fellows in the medical branches was appointed to a foreign school. Twenty-five years ago this proportion would probably have been reversed.

#### RELIEF FOR JAPAN

The *Red Cross Courier* reports that the quota of \$5,250,000 for the victims of the earthquake in Japan was oversubscribed to the amount of \$5,563,000. One million dollars was cabled to Japan and \$2,500,000 worth of supplies were shipped within a few days after the news of the disaster reached this country.

As John Barton Paine says: "The American Red Cross is the outward expression coined into action of the hearts of the American people."

## Miscellany

### THE BOSTON HEALTH SHOW

THE Boston Health Show in point of magnitude and completeness, scientific soundness and popular appeal promises to be the most notable event of the kind ever presented in this country. It will embody in well balanced proportions practically every educational, commercial and entertainment feature allied with the subject of health. An idea of the magnitude of the enterprise may be gained from the fact that more than 102,000 square feet of floor space will be required for its presentation. For more than a year the work of organization and development has been in progress and to every detail most careful attention has been given. Its purpose is to effectively educate the general public in the ways of health, the avoidance of sickness, and thus to promote human efficiency, prosperity and happiness. It is an undertaking worthy of the support of every good citizen.

The Sponsors of this great health demonstration are the Boston Health Department, the Massachusetts Department of Public Health, and the Boston Health Exhibit Committee. The Governor of Massachusetts and the Mayor of the City of Boston head the Exposition Committee, the membership of which embraces representatives of all of the organizations and institutions identified with or interested in the work of promoting human health and welfare in this community.

Several Thousand Health Officers and volunteer health workers will assemble in Boston during the week of the Health Show, the annual meeting of the American Public Health Association being held in this city at that time. Naturally, the Health Show will be an object of peculiar interest to the "visiting" members of this organization.

Health Sunday will be observed October 7, at which time it is planned to have health discourses in the churches, delivered, so far as is practicable, by distinguished visiting health workers.

**Educational Exhibits.**—The health departments of the City of Boston and the Commonwealth of Massachusetts, coöperating with all important professional and lay organizations, educational institutions and scientific bodies engaged or interested in promoting health and community welfare are preparing special educational displays for the exposition. Particular attention has been given to the development of exhibits having a strong public appeal, exhibits that are at once attractive and at the same time most effective in teaching important health truths. To this end, a large number of ingenious mechanical devices will be employed, and in all departments there will be active demon-

strations which will prove to be of peculiar interest to the general public. Among these will be the numerous animated exhibit pieces employed with marked success by the National Health Shows, Inc. There will be no gruesome or offensive displays; this is a health show, not a disease show.

**A Better Babies' Conference**, with accommodations for the examination of 100 children each afternoon, will be conducted with the assistance of leading children's specialists of Boston. Children from six months to six years will be given a mental test, physical examination, dental inspection, eye, ear, nose and throat examination and be weighed and measured, each being scored in accordance with the method recommended by the American Medical Association. This procedure will be conducted in the "Baby House," glass windows permitting the visiting public to view the examinations.

**Free Health Examinations**, conducted by a thoroughly competent corps of medical examiners, will be available to adults during the evening sessions of the exposition.

**Interesting Experiments and Demonstrations** will be generously employed in depicting the progress of medical and sanitary science.

**Parenthood Institute.**—Happy homes minister to health. An unusual feature of the Boston Health Show will be a Parenthood Institute held for the purpose of discussing problems that parents and those interested in maintaining wholesome, efficient home-life find most baffling. At these sessions, six in number, specialists in psychology and sociology and persons of experience in dealing with child-life will present in a practical way information of value to all charged with family responsibilities.

**Popular Health Talks** by leaders of health thought, every afternoon.

**Entertainment** of great variety and popular in character, appropriate to an exposition of this kind, will be provided each afternoon and evening.

**The Historic Health Pageant**, written especially for the Boston Health Show, requiring a cast of 400 in its presentation, will undoubtedly prove to be one of the great outstanding features of the exposition.

**Special Motion Pictures**, scientific, educational and entertaining, will be provided.

**Athletic Contests, Life-Saving and Physical Education Demonstrations** will be features of the daily program.

**Music and Dancing.**—Public dancing each evening, Sunday excepted.

**Appropriate Commercial Exhibits**, embracing a carefully selected display of approved commercial products having a bearing on individual and community health, hygiene and sanitation, will be made by manufacturers of national repute and leading merchants of Boston and

vicinity. Only those products that meet the requirements of medical and health authorities generally will be accepted by the Board of Control for display.

*Admission.*—Adults, 50 cents, including tax. Children under 16 years, 25 cents, tax paid.

*Advance Sale Tickets*, available up to and including October 5, 40 cents each, tax paid.

*Health Show Office.*—1001 City Hall Annex, Boston. Phone Congress 5100.

### MEDICAL CONDITIONS AND HEALTH WORK IN EUROPE

THE following are a few brief impressions arrived at by Dr. Charles F. Wilinsky, Director, Health Unit, 17 Blossom Street, Boston, who has returned from a two months' study of medical conditions prevalent at the present time abroad, and of the health work in progress in the European countries he visited.

There was nothing so outstanding and constructive in Europe as the medical program in the schools in London. Over 200,000 children received thorough corrective treatment in 1922, due to the wonderfully organized follow-up campaign for checking up the correction of the physical defects of the school child. The work of following up and securing treatment for ailing children is essentially the most important branch of school medical work. In London this is entrusted to what is known as a Care Committee Organization. Each school has a committee of volunteer workers who interview the parents and help them to carry out the advice of school physicians and school nurses. There are 5000 such workers, supported, guided and recruited by a staff of over 125 organizers, which organization is placed under the direction of a principal organizer, who is a half-time officer in the public health and education department.

The success of the thorough correction of defects is due to the excellent follow-up system which calls for the reinspection of the child entrusted to the care of the members of these committees. The first reinspection takes place from four to six months from the date of the original physical examination. A second reinspection takes place four to six months after the previous one, if the defects have not already been remedied. At a second reinspection special attention is drawn to neglected cases, and every endeavor is made to secure the parents' cooperation. In cases of difficulty, the aid of a special agent of the school department is enlisted. In serious cases, where all attempts at persuasion fail, the Society for the Prevention of Cruelty to Children are informed and they take action, in some cases involving prosecution. So thoroughly is this work followed up and done, that over 80 per cent. of the children hav-

ing physical defects have had the same corrected in 1922.

In the splendid "treatment scheme" of the London School and Health Departments there are 68 Treatment Centers, where children are brought for the correction of all possible defects. In 1922, 209,158 children were treated at these centers, divided as follows: teeth, 105,380 children; medical and minor ailments, 52,690; eye, 32,310; ear, nose and throat, 16,150; ringworm, 2628. The total number of visits made by the above group of children at the treatment centers were 1,292,929. This tremendous group represents 73 per cent. of the defective school children receiving treatment at these centers, the remaining 27 per cent. receiving their treatment from private physicians.

One may be pardoned for again alluding to the splendid corrective work going on, when it is realized that 192,730 children were inspected by the school dentists, an increase of 49,000 over 1921, and that the dental records show a remarkable improvement from year to year in the teeth of the school children. There is noted a great and cumulative improvement resulting in more than 15 per cent. of children leaving school with sounder teeth in 1921 than in 1913, and London is proud of its record of 8000 boys and girls leaving the London schools with every tooth sound in 1921, which would have been impossible but for the preventive and curative measures introduced in their dental program in 1913.

Quite in contrast to London's curative program is England's stand on vaccination. There are approximately three million and a half of the population of London County unvaccinated and liable to an epidemic of smallpox. This summer there was an extremely violent epidemic in Gloucester, England, and it is only in epidemic times that the Health Departments can enforce vaccination. During other periods the Englishman is protected by an Act of Parliament passed in 1907 which put an end to compulsory vaccination.

From time to time England has been subject to epidemics of smallpox, the only effective barrier being the Public Health Service of London, which have the duty of protecting against smallpox as soon as a single case occurs, and of suppressing it promptly. England is always in danger of smallpox-infected ships coming from India, sixteen of these arriving in 1919 alone, and they are only stopped by the vigilance of the port authority. All necessary measures of vaccination, segregation, and observation of contacts, disinfection and other steps to prevent the spread of smallpox are always before the minds of not only the medical officers of the respective localities, but the general practicing physician, owing to the possibilities of the spread of the disease due to non-vaccination, and it is hard to realize why England, with its eminent med-

ical authorities, cannot impress upon its people the protective value of vaccination.

Diphtheria, too, has been on the increase, with a higher death rate in 1922 than there has been since 1902. Experimentation with the Schick test in 1921 by Dr. R. A. O'Brien and his colleagues of the Wellcome Research Laboratories, who tested and immunized 329 inmates of two institutions in Mitchen and Norwood, England, showed such splendid results that it is difficult to conceive why London and other parts of England have not waged a campaign for the elimination of diphtheria; but it perhaps may be best summed up by quoting an English health authority who said that "an Englishman always impresses you with the statement that his home is his castle and he is not ready to allow experimentation upon his children." No concerted effort has been made by the proper authorities to refute the theory that vaccination, Schicking and administration of toxin-antitoxin, or the giving of anti-typhoid vaccine is experimentation. It was very refreshing to know that Dr. Childe, President of the British Medical Association, who estimated the cost of sickness and disablement to almost a billion dollars per annum in England, suggested concentration on fresh air, sunlight and better sanitary conditions in general with an appropriation of one-third of the amount of money expended upon illness, for the wiping out of slum areas, and the teaching of prevention of disease.

Paris, which for many years had been wrestling with the problem of syphilis, was forced after the war, to devote its attention to tuberculosis, receiving tremendous assistance from the Rockefeller Foundation, which devoted its attention to the fight of that disease. Dispensaries were organized, an anti-tuberculosis campaign was incessantly waged, with so much success and reduction of that dreaded scourge, that the Rockefeller Foundation has turned the work back to the National Committee for the Control of Tuberculosis in France.

Under the auspices of the Rockefeller Foundation, Miss F. Elizabeth Crowell is now making a study of the nurses' training in Europe, with the object in mind of improving the personnel and type of nursing service.

Dr. Eversole of the Rockefeller Foundation is making a medical survey of the various countries and awarding fellowships whereby medical men in Europe will come to the United States for observation and training.

The Pasteur Institute, the American Hospital, the Anti-Tuberculosis Society and the French Red Cross, and Public Health Nursing Societies are all doing splendid health work in Paris, which is bearing much fruit.

The American Red Cross Headquarters in Paris have recently been closed and the work turned over to the League of Red Cross Soci-

ties, who, with their headquarters in Paris, are doing splendid missionary health work all over Europe.

The League is waging an intensive campaign of the establishment of Junior Red Cross Societies, with a splendid response from France, Czecho-Slovakia, Bulgaria, Roumania, and some of the other smaller countries. The services of the League of Red Cross Societies are at the disposal of all of the members of the League, and they act as a collecting and distributing agency of all health literature printed in the various languages, which may be of benefit to its members. There are forty-six nations members of the league, and it can readily be seen how the Red Cross Societies, whose object is to speedily disseminate modern health information, propaganda, distribution of literature, teaching of health by films, etc., cannot help but raise the standard of health of the people who constitute its membership.

One cannot help but be impressed with the practical health program in Rome, with its famous Policlinic and hospital with over 1400 beds, a staff of eminent physicians and surgeons, including Dr. Bastianelli and Dr. Alessandra, internationally famous, who furnish the people of Rome most efficient medical and surgical treatment.

An excellent Baby Hygiene Program is carried on by the Health Department, with six baby stations, each having two physicians and two nurses in attendance. There is an average daily attendance of from 90 to 100 babies, who are carefully weighed and measured, and the mothers given practical instruction and advice. These stations are open six days a week, with a splendid response by the Italian mothers, so much so that there is apparently very little necessity of following up the work in the home by the nurse.

There is an excellent program of school inspection, with the remedying of physical defects carried on by the Health Department in Rome, and children needing corrective treatment followed up thoroughly. Failure to correct defects is cause for exclusion, and in severe cases prosecution.

Lectures, moving pictures and slides are being shown to school children, as well as school teachers, with emphasis upon posture, hygiene, open air, sunlight, and the value of correcting physical defects.

The responsibility of quarantine in contagious diseases is placed upon the shoulders of the family physician, with no placarding in Rome proper, except for smallpox, at the present time.

The Health Department in Brussels is very efficient and functions along modern lines, with an intelligent program of Baby Hygiene and school examination work.

A gift of \$3,500,000 by the Rockefeller Foun-

dation to the University of Brussels made possible the planning and establishment of a group of medical buildings, forming the most modern and convenient medical plant in Europe.

No other country can boast of the sanitary conditions prevalent in Switzerland, and Lausanne, Lucerne and Geneva are models of cleanliness, with apparently not a spot of rubbish, nor a scrap of paper on their streets, and we have much to learn from them about the care of our streets and alleys.

One must visit the health section of the League of Nations at Geneva in order to be able to grasp fairly quickly the medical and health conditions prevalent all over Europe.

The Inter-Governmental health work instituted by the medical section of the League of Nations makes it possible for the League to have a group upon the pulse of the health of Europe.

The aim and purpose of the medical section is to advise the League itself about all international questions of public health, to establish closer relations between health services of the different countries, to act as a clearing house for information, and finally, to help in every possible way to remedy defects in the various countries, by bringing to their attention the most modern medical knowledge and aid for the particular disease which may be a source of trouble to that nation at a particular time.

For this purpose a service of epidemiological intelligence and public health statistics has been organized and is being carried on. The members of the League send their epidemiological information weekly or monthly to headquarters, which is tabulated by a small body of experts in Geneva. The information is studied and general bulletins published. As a result of the information received investigations are undertaken by experts of national medical institutes and other technical agencies.

Relief is given to any epidemic condition which may be evident from the statistics compiled, by the sending of trained experts to the source of trouble, who organize, train and teach the physicians and nurses of the countries where the epidemic may exist, as to the most modern method of coping with the situation. A concrete example was the work of the Epidemic Commission which was set up by the council, and \$1,000,000 given to it to carry on this work in Poland, which country was most exposed to the wave of epidemics coming from Russia. More recently the commission has been at work at Greece, where, owing to the influx of refugees, there has been an epidemic wave.

A very important branch of the work carried on through the health organization is that of developing a mutual understanding between health administration in different countries, and trying, so far as possible, to establish a sound, common, modern policy of health. This has

resulted in an interchange of public health personnel, started October, 1922, where, with the help of a grant of \$60,000 a year for three years by the International Health Board of the Rockefeller Foundation, the health committee has organized a system of visits including lectures, observations and practical work for medical officers of health, wishing to study the way problems of sanitation and the combating of disease are dealt with in foreign countries. The health committee has also organized a system of individual fellowships, by which one or two medical officers of health, wishing to study some particular problem, may visit any given country, to study the subject, and receive a certain compensation from the health organization while doing so. The purpose of this work is not only to give the participants the practical benefit derived from getting specific knowledge on their subjects, but largely to build up a coöperation and mutual helpfulness between national health administrations.

A practical demonstration of the value of the health section of the League of Nations and its mutual benefit to a country in its League because of its ability to demonstrate the best knowledge of coping with a situation, may be mentioned in the reduction of typhus and relapsing fever in Russia, with 250,000 cases existing during the first four months of 1923, as against 1,800,000 cases during the first four months of 1922.

Austria, with its great problems of tuberculosis and malnutrition caused by and following the great war, is slowly improving, and deserves great credit for bravely struggling to rise from its physical ruin.

All in all, a person touring Europe, and interested in health work, is agreeably surprised at the brave efforts of the medical and nursing organizations of the various countries visited, who have heroically struggled for almost ten years to rehabilitate their communities from a physical point of view. Medical men and organizations have modestly solicited both advice and assistance, and the response by countries and organizations able to furnish both aid and advice, has been splendid, with the result that the continental countries involved in the war are slowly but surely improving physically, and with the benefit of having gained, by acquiring the most up-to-date modern medical and sanitary assistance and advice from countries able to furnish the same.

The influence of the Red Cross and other groups who rendered assistance during the war has been a lasting one, and representatives of these organizations are now able to teach the lesson of health, finding a response in the various countries where they had established an influence.



## BRISTOL NORTH DISTRICT MEDICAL SOCIETY

A MEETING of the Bristol North District Medical Society was held at the Bristol County Tuberculosis Hospital on September 20, 1923. There was a clambake and following it informal speeches by Richard E. Warner and John I. Bryant of the trustees of the hospital, and Dr. E. H. Bigelow, President of the Massachusetts Medical Society. Dr. Milliken, district health officer, spoke on the examination of children for tuberculosis.

Dr. W. Y. Fox was elected reporter to the BOSTON MEDICAL AND SURGICAL JOURNAL. Further meetings were left in the hands of a committee.

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## Obituary

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### FRANCIS W. GOSS

THE transitoriness of human life and alike its seeming fullness were emphasized this morning at the dignified and in every way suitable services held in the Chapel at Mount Auburn over Dr. Goss. Only two or three physicians were present, the place and hour doubtless preventing some who would have liked to attend. His removal to California after retiring from active work counts, of course. Then he was eighty-one years old, older than some young folks, probably rightly, think anyone ought to live.

As a wise and devoted practitioner he justly won the confidence and affection of his patients. His rectitude, ever ready helpfulness, and delicate sense of what is fitting were recognized by his professional brethren.

He sought not the limelight. Rather did he shun it. For four and thirty years he was Secretary of the Massachusetts Medical Society, quietly, faithfully, tirelessly serving the Society. So quietly and smoothly did he perform his duties that it is to be feared that they seemed to the uninitiated to do themselves. Content to do his work well, he sought not thanks or recognition—and did not get them in the measure he deserved. Attendance at meetings of the Society, its Council and various committees seemed to have the right of way with him, and must have interfered with his private work. Many men recall his kindly, thoughtful eyes, his unfeigned courtesy, the accuracy and breadth of his knowledge of the Society's affairs.

A modest, loyal gentleman. Of such is the Kingdom of Heaven.

F. C. S.

### EDWARD CORNELIUS CONROY, M.D.

DR. EDWARD C. CONROY, who died at Methuen, July 4, 1923, had been a resident of Andover since 1897, the year he received his diploma in medicine from the University of Maryland. A valued member of the school committee of Andover for twelve years, he was one of the substantial citizens of the town. The son of Edward and Honora Conroy, he was born in Neenagh, County Tipperary, Ireland, December 8, 1860, studied at Rockwell College, Dublin, and, coming to America, took both an A.B. and an A.M. at Loyola College, Baltimore.

Dr. Conroy's fraternal affiliations were many. He was a member of Division 1, A.O.H., of Lawrence; Court Philip Sheridan, Catholic Order of America; vice-president of the Andover Club; Andover Council, 1078, K. of C.; the American Medical Association, Massachusetts Medical Society, Holy Name Society of St. Augustine's Church, honorary member of the Harvard Club of Andover.

His death resulted from an operation for gallstones.

Dr. Conroy married Alice Tracy of Andover in 1883. She survives him, as do two sons and a daughter, one of the sons, Augustine E., being in the 1924 Class of Tufts College Medical School.

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### WILLIAM HENRY BURKE, JR., M.D.

DR. WILLIAM HENRY BURKE, JR., who was for nearly a quarter of a century a practising physician in Cambridge, died September 23, 1923, at his home in that city. Dr. Burke was born in Brighton, fifty-six years ago. He was graduated from the Harvard Medical School in 1899. The following year he was house officer at the Carney Hospital and then began practice in Watertown, soon moving to Cambridge. For several years he was school physician for the city of Cambridge. He was a medical examiner for the Knights of Columbus, of which he was a member. He was a member also of the Massachusetts Medical Society, Cambridge Medical Improvement Society and the Carney Hospital Alumni Association.

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## News Items

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REMOVAL.—Dr. M. Bennett has moved his office from 153 Congress Avenue, Chelsea, Mass., to 112 Shurtleff Street, Chelsea, Mass.

DR. WILLIAM C. NEWTON, formerly of 1069 Boylston Street, Boston, has retired from practice in Boston and is living at 2504 San Marcos Avenue, San Diego, California.

REGISTRATION OF PHYSICIANS IN  
MASSACHUSETTS

The following is the detailed statement of registration in examination in medicine, July, 1923.

College of Graduation	
Tufts .....	41
Harvard .....	26
Mass. College of Osteopathy .....	10
Boston Univ. School of Medicine .....	8
Middlesex College of Medicine & Surgery .....	8
Chicago College of Osteopathy .....	3
St. Louis College of Physicians & Surgeons .....	3
Physicians & Surgeons, Boston .....	3
Georgetown University .....	2
American School of Osteopathy .....	2
Jefferson Medical College .....	2
Kansas University .....	1
University Medical College, Kansas City .....	1
Baltimore Medical College .....	1
University of Manitoba .....	1
Philadelphia College of Osteopathy .....	1
Kansas City University Medical School .....	1
Freiburg University .....	1
University of Cincinnati College of Medicine .....	1
Medical College of Virginia .....	1
Queen's University .....	1
Hahnemann Medical, Pa. ....	1

Total Registered ..... 119

The following is the detailed statement of failures in examination in medicine, July, 1923:

St. Louis College of Medicine & Surgery .....	9
Middlesex College of Medicine & Surgery .....	5
Mass. College of Osteopathy .....	7
College of Physicians & Surgeons, Boston .....	3
Tufts .....	3
Kiev, Russia .....	1
Total Rejected .....	28

## NAMES OF SUCCESSFUL CANDIDATES

Alexander, William Hamlet, Massachusetts General Hospital, Boston, Mass.  
 Amaral, Manuel Francis, 85 Otis St., East Cambridge.  
 Anderson, Ruth Adeline, 120 Main St., Worcester, Mass.  
 Appel, Bernard, 981 Morton St., Boston (Dorchester).  
 Baker, Max, 99 Myrtle St., Boston, Mass.  
 Balloni, Alexander Edward, 215 Pearl St., Somerville.  
 Barbeau, Alexandre, 177 Green St., Manchester, N. H.  
 Braverman, Harry, 441 Atlantic St., Stamford, Conn.  
 Beauchamp, Eugene Wilfrid, Jefferson Hospital, Philadelphia, Pa.  
 Bellas, Joseph, Sylvester Hospital, Hull, Mass.  
 Benaglia, Carl Peter, 11 Calder St., Boston, Mass.  
 Bent, Mildred, 333 Commonwealth Ave., Boston, Mass.  
 Berlin, David Daniel, 8 Standish St., Dorchester, Mass.  
 Blakey, Leonard Charles, Long Island Hospital, Boston, Mass.  
 Bloom, Abraham, Mass. Homeopathic Hospital, Boston, Mass.  
 Bloom, Robert Raymond, Mass. Homeopathic Hospital, Boston, Mass.  
 Boss, Eugene George, 30 Westernview St., Springfield, Mass.

Bougs, John Herman, 17 Claremont Park, Boston, Mass.  
 Brennan, Jeremiah Francis, St. Elizabeth's Hospital, Brighton, Mass.  
 Buck, Robert William, 221 Longwood Ave., Boston, Mass.  
 Butler, Alfred Worcester, 330 Mt. Auburn St., Cambridge, Mass.  
 Campagna, Themistocles Vincent, 64 Morton Ave., Medford, Mass.  
 Canavan, Henry Stephen, 427 Chancery St., New Bedford, Mass.  
 Chamberlin, Ira Iowa, 80 Worcester St., Boston, Mass.  
 Chandlee, Gertrude Jackson, 10 Newbury St., Boston, Mass.  
 Chartier, Arthur Damien, 85 Otis St., Cambridge, Mass.  
 Chute, James Lemuel, 330 Mt. Auburn St., Cambridge, Mass.  
 Clark, Mildred Chase, Suite No. 1, 87 Gainsboro St., Boston, Mass.  
 Cochran, John Joseph, Boston City Hospital, Boston, Mass.  
 Cohen, Abram Irving, 27 Washington St., Roxbury, Mass.  
 Cohen, Theodore, Lynn Hospital, Lynn, Mass.  
 Colson, Z. William, Lawrence General Hospital, Lawrence, Mass.  
 Consentino, Albert Benedict, St. Elizabeth's Hospital, Brighton, Mass.  
 Corr, Joseph Edward, 77 Perry St., Brookline, Mass.  
 Cosgrove, Thomas Conlin, 14 Fremont St., Mattapan, Mass.  
 Crosby, Carlton Roland, 10 Davis Ave., Brookline, Mass.  
 Daiell, Harvey Lee, Middlesex General Hospital, New Brunswick, N. J.  
 Dameshek, William, 24 Staniford St., Boston, Mass.  
 Davis, Clinton Frank, 11 Bridge St., Manchester, Mass.  
 DeLisle, Antonio Daniel, 449 Clarendon St., Fitchburg, Mass.  
 D'Errico, Emilio, 19 Alpine St., Roxbury, Mass.  
 Dewire, William Francis, 384 Washington St., Somerville, Mass.  
 Doe, Albert Edwin, Hotel Carlyle, Worcester, Mass.  
 Duff, Paul Harrington, 5 Dexter Row, Charlestown, Mass.  
 Duggan, Daniel Joseph, 51 Melvin St., Wakefield, Mass.  
 Edwards, Franz Gill, Boston Sanatorium, Mattapan, Mass.  
 Ekwall, Thorsten Roland, Grafton State Hospital, North Grafton, Mass.  
 Everett, Paul Ellsworth, 66 Church St., Wellesley, Mass.  
 Feifer, Anthony Michael, 587 Broadway, Providence, R. I.  
 Fallon, John Michael, 11 Westland St., Worcester, Mass.  
 Flynn, William Anthony, Quincy City Hospital, Quincy, Mass.  
 Fordrune, William John, 2909 Valentine Ave., New York City, N. Y.  
 Goldfarb, Daniel Charles, 36 North Russell St., Boston, Mass.  
 Hall, George Morris, 58 Corey Road, Brookline, Mass.  
 Harlow, John Stanley, Jr., 7 Craigie Circle, Cambridge, Mass.  
 Hayes, Maurice Augustine, 30 Prince St., Cambridge, Mass.  
 Haynes, Edith Louise Morgan, 5419 Ingleside Ave., Chicago, Illinois.

Heath, Elmer Hinckley, Jr., Boston City Hospital, Boston, Mass.  
Hill, Lewis Brown, Foxboro State Hospital, Foxboro, Mass.  
Hughes, James Charles, 223 West Springfield St., Boston, Mass.  
Isaacs, Raphael, 8 Irvington St., Boston, Mass.  
Kelleher, William Lawrence, 90 Highland St., Marlboro, Mass.  
Kickham, Edward Leonard, 1834 Beacon St., Brookline, Mass.  
Korb, Charles, 28 Savin St., Boston, Mass.  
Layton, Roy Wilford, Fort Banks, Mass.  
Lederman, Bernard, 37 Bernard St., Dorchester, Mass.  
Lee, Frederick Morton, 66 Church St., Newport, R. I.  
Levin, Samuel Max, Brockton Hospital, Brockton, Mass.  
Levine, Abraham Morris, 155 Talbot Ave., Dorchester, Mass.  
Lindquist, Wilbert Gustaf Adolf, 3 Oakdale Terrace, Jamaica Plain, Mass.  
Loitman, Clara, Mass. Homeopathic Hospital, Boston, Mass.  
McCarthy, John Daly, 112 Myrtle Ave., Fitchburg, Mass.  
McMackin, John Vinson, 1496 North Shore Road, Revere, Mass.  
Mantione, Rosario Leonard, 112 Salem St., Boston, Mass.  
Marlin, Myer, Boston Sanatorium, Mattapan, Mass.  
Matzkin, Jacob Herman, 31 Homestead St., Roxbury, Mass.  
Merlis, Isaac, Eudowood Sanatorium, Townson, Indiana.  
Miles, George Stanley, Brooklyn Hospital, Brooklyn, N. Y.  
Mirkin, Anna Katherine, 17 Parkman St., Boston, Mass.  
Mitchell, Edward Francis, 27 Summit St., Clinton, Mass.  
Moore, Elsie Chapin, Southampton, Mass.  
Murphy, Thomas Basil, 59 Farragut Ave., Medford, Mass.  
Nyman, Daniel Eugene, Sheffield Road, Wakefield, Mass.  
Perkins, Arthur Hunter, 52 Highland St., Norwood, Mass.  
Perkins, Doris, 37 Tremont St., Portland, Maine.  
Piutti, Helene, 78 Perkins St., Jamaica Plain, Mass.  
Poland, Flora Mary, Lowell General Hospital, Lowell, Mass.  
Pothier, Aubrey Joseph, 175 Purchase St., New Bedford, Mass.  
Powell, James Patrick, 13 Wilbur St., Cambridge, Mass.  
Rafferty, George Edward, 21 Childs St., Lynn, Mass.  
Reynolds, Edwin Drew, 4 Warren St., Danvers, Mass.  
Roberson, Tracey Lloyd, Worcester City Hospital, Worcester, Mass.  
Rosen, Martha Gluck, c/o Green, 1121 West Farms Road, New York City, N. Y.  
Rusman, Charles, Grace Hospital, 1418 Chapel St., New Haven, Conn.  
Shatelson, William, 576 Hudson Ave., West New York, N. J.  
Sheehan, John Dennis, Long Island Hospital, Boston, Mass.  
Sidel, Nathan, Springfield Hospital, Springfield, Mass.  
Silverstein, Maurice Louis, 12 Mascoma St., Roxbury, Mass.  
Smith, Charles David, 24 Athelwold St., Dorchester, Mass.

Smith, Millard, 333 Longwood Ave., Boston, Mass.  
Snow, Kathlyne Swift, 440 Newbury St., Boston, Mass.  
Solomon, Bennett, Springfield Hospital, Springfield, Mass.  
Spaulding, Harold Archibald, Rhode Island Hospital, Providence, R. I.  
Stevens, Joseph Edward, 40 Larone Ave., West Springfield, Mass.  
Swan, Channing Stearns, 30 Pearl St., Stoughton, Mass.  
Thompson, John Riley, Post Office Building, Needham, Mass.  
Treanor, John Peter, Jr., 3 Howes St., Boston, Mass.  
Twomey, Charles Francis, Boston Sanatorium, Mattapan, Mass.  
Ussher, Clarence Douglas, Box 581, Stonington, Conn.  
Vance, James Elmon, Evans Memorial, Boston, Mass.  
Wallace, Loran Blenus, 180 Belmont St., Brockton, Mass.  
Wallach, Lillian Charlotte, 1658 78th St., Brooklyn, N. Y.  
Walsh, William Martin, 32 Edison Green, Dorchester, Mass.  
Ward, Arthur Henry, Cambridge Hospital, 330 Mt. Auburn St., Cambridge, Mass.  
Warren, Shields, Pathological Laboratory, Boston City Hospital, Boston, Mass.  
Weiner, Simeon, 61 Sterling Place, Weehawken, N. J.  
White, Priscilla, 333 Longwood Ave., Boston, Mass.  
Williams, Harold van der Elst, Worcester City Hospital, Worcester, Mass.  
Winslow, Jennie Madalene, 50 Cushing St., Cambridge, Mass.

## Correspondence

### CRITICISM OF DR. KELLEY'S LETTER

Mr. Editor:

I was interested in the letter of Commissioner Kelley in the *BOSTON MEDICAL AND SURGICAL JOURNAL* of August 16 and I was agreeably impressed by the courteous tone of Dr. Kelley's criticism of the pamphlet issued by this League under the title of "An Open Letter on the Schick Test."

I can well understand that you would not consider the publication of a letter from me dealing with all the issues raised by Dr. Kelley in detail. I should, however, like your indulgence for the publication of a quotation which answers Dr. Kelley's criticism of the circular in question did not contain the article by Dr. William H. Park which appeared in the *Archives of Pediatrics* in June, 1921. On this point, Mrs. Edgar G. Duffee, in an article in the *Fall River Globe* of January 17, 1923, says:

"One might here well ask the question: When is diphtheria not diphtheria? The answer would appear to be: When it occurs in an 'immunized' subject. An 'immunized' subject is one who has been given injections of diphtheria toxin-antitoxin.

"Proponents of the Schick procedure, evidently disturbed by this failure of their alleged prophylactic to prevent the development of diphtheria, having made an investigation, now declare that Dr. Blauner, who made the original report, was in error; that there had occurred, in the institution referred to, no epidemic of diphtheria, there having been, instead, a number of cases of 'streptococcus tonsillitis,' in children who were 'carriers' of diphtheria germs.

"In a standard text-book on bacteriology we read that 'distinctions formerly drawn between true diph-

theria and non-diphtheritic conditions from the appearance and site of the membrane, have no scientific value, the only true criterion being the presence of the diphtheria bacillus.

"For a good many years, understand, this has been regarded as the truly scientific view. Now, however, 'bacteriological diphtheria' having appeared in children who theoretically were immune, we witness a strategic change of front: Park, one of the leading exponents of the Schick procedure, tells us that 'even with a positive culture, a case can be considered as undoubted diphtheria only when the lesions are characteristic.'

"The statement that some of the children referred to by Blauner were 'carriers' is an admission that in their throats there were diphtheria bacilli. Whether or not the bacteriological test should be regarded as final may be an open question. But without doubt, had these cases occurred in children who had not been Schick tested and 'immunized,' they would have been regarded as diphtheria, and given antitoxin. Had they recovered, they would have been offered as clinical material evidencing the value of this serum.

"The bacteriological test as a basis for diagnosis should apply in all cases or in none. Those who regard it as final in general public health work, and of only secondary importance in cases of sore throat occurring in children who have either reacted negatively to the Schick test, or have been given toxin-antitoxin injections, manifest a degree of prejudice which disqualifies them as witnesses in this matter. This is not to say that they are intentionally dishonest. They illustrate simply the interesting psychological fact that people very frequently see only what they desire to see."

Very truly yours,

HENRY D. NUNN,  
*Manager and General Counsel,*  
Medical Liberty League, Inc.

#### GROUP INSURANCE

September 21, 1923.

Mr. Editor:

The Group Indemnity Insurance for members of the Massachusetts Medical Society has been very satisfactory; mainly because of the hearty support and cooperation of the members.

After November 10 this insurance will be called Physicians' Liability Insurance for members of the Massachusetts Medical Society, to comply with Attorney-General Benton's ruling and the Insurance Department. It makes no difference whether the appendage extending behind a lamb is called a tail or a fifth leg, or the end; it is the same thing, does the same work, and looks just the same.

So with this Indemnity Insurance. "What care we" what it is called? We are after results.

We have the best news ever to be announced with the renewals in November. I know you will be as pleased as we are.

The membership is increasing daily, and we are very much pleased with the splendid spirit and hearty cooperation given us by the fellows.

Very truly yours,

GEORGE H. CROSBIE.

#### NOTICES

##### NEW ENGLAND SURGICAL SOCIETY

Owing to a conflict in dates of our meeting with those of the Interurban Surgical Society, the Executive Committee has decided to hold the meeting of

the New England Surgical Society on October 17 and 18 instead of October 18 and 19.

P. E. TRUESDALE, *Secretary.*

#### HAMPDEN DISTRICT MEDICAL SOCIETY

Meetings of the Society for the year are as follows: October 26, 1923, at Hotel Kimball, Springfield, at 1 P.M. Luncheon speakers:

Dr. J. S. Stone of Boston, Dr. Alfred Worcester of Waltham, Dr. E. H. Bigelow of Framingham and Dr. W. A. Pusey of Chicago, President of the American Medical Association, who will speak on "Our Changing Knowledge of Eczema." This is the joint meeting of the four western counties, namely, Berkshire, Franklin, Hampshire, and Hampden.

January, 1924, at Springfield. Papers by local Fellows.

April, 1924, at Springfield. Papers by local Fellows. This is the annual meeting.

#### THE NEW YORK ACADEMY OF MEDICINE

17 West Forty-Third Street

Stated meeting, Thursday evening, October 4, 1923, at 8.30 o'clock. The Wesley M. Carpenter Lecture. A Consideration of the Nature and Treatment of Traumatic Shock. Prof. Walter B. Cannon, Harvard Medical School. (By invitation.) The lecture will be illustrated with lantern slides.

#### SOCIETY MEETINGS

##### DISTRICT SOCIETIES

Worcester District:—The meetings for the year are as follows: October 10 at Worcester State Hospital. Papers by Dr. Reginald Fitz and Dr. E. W. Taylor of Boston.

November 14 in Whitinsville. Paper by Dr. Channing Frothingham of Boston.

December 12 in Worcester. Papers by Dr. Fred B. Lund of Boston and Dr. Michael F. Fallon and Dr. Walter Seelye of Worcester.

January 9 at St. Vincent Hospital, Worcester.

February 13 at Memorial Hospital, Worcester.

March 13 at City Hospital, Worcester.

April 10—A public meeting.

May 8—Annual Meeting.

Franklin District:—Society meets at Greenfield the second Tuesday of November, January, March, May, July, September. Annual Meeting in May.

Norfolk South District:—Meetings first Thursday of each month at 11.30 a. m. October at Norfolk County Hospital, Braintree; November, December, January, February, March, April, and May at United States Hotel, Boston. The November, February and May meetings are Stated Meetings.

Essex North:—Combined meeting with Middlesex North, Middlesex East and Essex South October 17, at 1.30 p. m., at North Reading State Sanatorium, North Reading. Semi-annual meeting at Haverhill, January 2, 1924. Annual Meeting at Lawrence, May 7, 1924.

Middlesex North:—Combined meeting with Middlesex East and Essex South, October 17, at North Reading Sanatorium. January 31, 1924, at Lowell. Annual Meeting in April.

Hampden District:—The meetings for the year are as follows:

Combined meeting October 26, 1923, at Hotel Kimball, Springfield, at 1 p. m. Speakers: Dr. J. S. Stone of Boston, Dr. Alfred Worcester of Waltham, Dr. E. H. Bigelow of Framingham, and Dr. W. A. Pusey of Chicago. January, 1924, at Springfield. April, 1924, at Springfield. Annual Meeting.

Bristol District:—Semi-annual meeting will be held in New Bedford, November 1, 1923. The Annual Meeting will be held in New Bedford, May 1, 1924.

##### STATE, INTERSTATE AND NATIONAL SOCIETIES

October, 1923:—Boston Health Show will be held in Boston, October 6-13, inclusive.

October, 1923:—Meeting of the American Health Association will be held in Boston, October 8-13, inclusive.

October 17-18, 1923:—Annual Meeting of New England Surgical Society in Boston.

For list of Officers of the Massachusetts Medical Society, see page viii of the Advertising Section.